The Builder.

No. CCCII.

SATURDAY, NOVEMBER 18, 1848.

LIFE is being lengthened, — not alone by sanitary measures, but by those applications of science which shorten distances, spread intelligence, and collect and condense knowledge; so that a man may now see, acquire, and do, as much in *one* year as his great-grandfather could in *five*. So much the more shame to him if he use not his opportunities well.

May we give a personal illustration of the truth of the first assertion? Our late visit to Scotland, when we were invited to lecture on ARCHITECTURE in places where, as we were afterwards informed (much to our astonishment), no person had ever publicly discoursed on architecture before, and the subject was altogether a novelty, occupied twelve working days and two Sundays. In that time we travelled nearly fourteen hundred miles; gave *ten* lectures — namely, four in Glasgow, under the title of "History in Brick and Stone;" * three in Kilmarnock, two in Paisley, and one in Dundee; were occupied flatteringly, as already mentioned, one whole evening, by the Glasgow authorities; and wrote for and edited, as satisfactorily as if at home, thanks to the perfection of postal arrangements, one number of our journal. This would not simply have been a *feat* on the part of the great-grandfather aforesaid, but a sheer impossibility; yet, in the present case, it was accomplished with little personal effort, and is not spoken of as a matter of wonderment, or as warranting the slightest approach to self-gratulation, but just because it is what any who chose might do, and, therefore, affords an apt illustration of the remark, that life is being lengthened.

The intelligence and ability displayed by all classes in Scotland are very considerable, and can scarcely fail to be observed: such inscriptions as that over a door in Paisley serve to explain the state of things,—"The Grāmar Scuil, 1586." It is gratifying to learn that scruples and prejudices are giving way before the strength of common sense, and that our northern neighbours are beginning to apply themselves in a road up to this time little trodden, namely,—the study and preservation of their antiquities. All their local guides for some years past have contained lamentations for previous neglect and injuries, and have urged the importance of investigation and care in future. "Architectural antiquities," writes one, after pointing out how much careful accounts of their ancient buildings are needed, "however dilapidated and time-worn, are objects of incalculable value and interest. They are indexes of the most memorable events in history—the lives of monarchs, statesmen, patriots, and philosophers,—and point out, with the palsied finger of antiquity, the progress of refinement, from the barbarous ages in which they flourished, to the present happy and [comparatively] enlightened period."*

The Abbey of Paisley, which gave the first of the Stuarts to the throne of Scotland,† was a building of large extent, and still displays considerable remains. It was founded in 1160, and is attributed to John Morrow, by some authors called Murdo, who, according to an inscription in Melrose Abbey, "had in keping al mason werk of Santandrays (St. Andrew's), ye hye Kirk of Glasgu, Melros, and Paslay." The nave of the ancient church is used for service; and, though coarse in details, is remarkable for a considerable degree of grandeur. It is peculiar in having a series of large stone brackets (half a hexagon of 9 feet in the longest diameter, and projecting 3 feet 6 inches) in the spandrels of the triforium, under the clerestory windows, and which assist to form a passage-way from one end of the church to the other. The transepts and chancel of the old church lie open, and are used as a burial-place. The west front of the nave is of good Early English character, but the greater part of the church internally can scarcely be earlier than the end of the fifteenth century. The demolition of the abbey took place under such an order as this:—"Traist Friends,—After maist hartey commendation, we pray you faill not till pass incontinent to ye kyrk of Paisley, and tak doun ye haill images yrof, & bryng furth till ye kirkyard & birn thym oppingly, & syklyk cast doun ye altris & picturis, & purge ye sayd kyrk o' a' kynds o' monuments of idolatrie; and this ye fail not till doe, as ye will doe us singular empleasance, and sae committis you till ye protection of God. From Edinburgh, 12 August, MDLX.

Signed ARGYLE,
JAMES STEWART,
RUTHVEN."

The interior of the church is now filled with pews and a large gallery, which, according to the local historian before quoted, are most judicious, and "render the *tout ensemble* most complete," but are, in truth, perfectly abominable.

They have an excellent cemetery at Paisley, occupying 23 acres, which forms, at the same time, public walking-grounds. It contains many neat monuments, and commands a fine view.

In the same town a school of design has been established, and a new building of considerable extent, not yet opened, has been erected for the purpose, by Mr. J. T. Lamb, a local architect. The late master of the Norwich school has been transferred here, but not without a controversy. Alas! poor school of design! It might as properly be called a school of *plots*.

Moving on a little further, *apropos* of design, Kilmarnock boasts the production of a self-taught artist, John K. Hunter, whose works as a portrait painter merit commendation. He is known in that part of Scotland as the "Kilmarnock Cobbler," from having been bred to that trade. In 1831 a number of amateur artists, natives of this town, formed themselves into a society, under the name of the "Kilmarnock Drawing Academy," the object of which was mutual improvement in painting. Mr. Hunter was one of these; and out of forty-five pictures, the largest number ever exhibited by the members at one time, sixteen were by him. These he executed in time stolen from the toil at his trade, which eight children required from him. In the day he was seen in the Academy a devoted student; at night he would be found beating out the sole of a pair of shoes with his hammer, labouring for the support of his family. For some years past, however, he has pursued the profession of portrait painting. The story is not without a lesson.

Mr. Fillans' statue of Sir James Shaw, Bart., which was set up at the cross in Kilmarnock in August last, is for the most part a very satisfactory production, and a great ornament to the town. It is of Carrara marble, rather larger than life, and stands on a pedestal of Aberdeen granite. He is attired in his robes as Lord Mayor, and rests on his left leg with the right knee a little advanced: in his right hand he holds a roll, and with the left his robe: the hands, by the way, are too large. The pose is agreeable, and the likeness is said to be good.

At Mauchline, about nine miles from Kilmarnock, there is a railway viaduct of very large size, which has become one of the lions of the place: we were unable, however, to visit it. The span of the main arch is 184 feet, and the height of the crown of it from the water 182 feet.

It is some distance from Kilmarnock to Dundee, 130 miles perhaps, but the "Iron-horse" makes nothing of this. The road is charming too: hills, glens, trees, streams, and cots succeed each other in quick and beautiful succession. The *Carron* river (suggestive of cheap stoves!); the Bannockburn; Stirling, with its castle finely placed, and two bridges over the Forth; Allan-water; Dunblane (to say nothing of "Jessie"), Perth,—all are full of tradition and poetry, and keep the mind, as well as the eye, occupied during the journey.

Dundee is an extensive and interesting town. The railway from Perth, which passes through the glorious Firth of Tay, parallel with the town, and so cuts it off from the sea, enclosing, moreover, an expanse of stagnant water between the line and the houses, has much injured it, and calls for alteration.

Amongst the modern buildings in Dundee may be enumerated the Public Seminary, by Mr. Angus, architect, having a Grecian Doric portico of six columns; Ward Chapel, a Gothic edifice, erected about fifteen years ago, by Mr. Brewster, since dead, and better in character than some even more recent Gothic buildings in Scotland, although it would not bear trial by present English canons. We may also mention the "Watt Institution," a commodious and well-designed building, erected in 1838, under Mr. Paterson, architect, also since dead.

Among the ancient buildings, the east

---

* A pregnant and continuous history it is; as the following brief heads of the discourses will suffice to suggest. No. 1. Introduction—Interesting nature of the study of Architecture—Its History, the History of Society—Origin—Biblical Architecture — Stones of Memorial — Stonehenge — Rocking Stones — Babylon — Babel — Solomon's Temple—Mexican Monuments—Egypt—Gigantic Nature of the Buildings—Circumstances which influenced Egyptian Architecture—Importance of Egypt—The Pyramids, their Construction and Purpose, Recent Theory—Tombs—Reflections induced.—No. 2. Egypt continued—The Labyrinth—Thebes—Luxor and Carnak—General Appearance of an Egyptian Temple—Characteristics of Egyptian Architecture—Rock-cut Temples—Obelisks—Transport of the Luxor Obelisk to Paris, means adopted to raise it—Effect of early Forms on Architecture—India—Greece—Cyclopean and Pelasgic Construction—Connection of Egypt and Greece—Earliest Buildings—The Age of Pericles—Temples—Characteristics of Grecian Architecture—Theories of its origin—The "Orders"—Modern Examples—Art in Athens—The Parthenon.—No. 3. Polychromy—Etruria—Italy—Rome—Connection with Etruria and Greece—The Augustan period—Pantheon—Coliseum—Baths, importance of the present movement—The Forum—Appearance of Rome—Effect of the introduction of the Arch—Its History—Characteristics of Roman Architecture—Pompeii—Domestic Architecture—Fall of Rome—Constantine—Byzantium—Christian Churches—Mosaics and other Decorations—Growth of a new style of Architecture—The Goths and Lombards—Architecture in Britain—Importance of preserving Ancient Remains—The Saxons—The Normans—Village Churches—The value of the Fine Arts.—No. 4. Invention of the Pointed Arch—Various Theories—Milner's intersecting Arches—Rise and Progress of the Pointed Style — Examples — The Freemasons — Their singular Skill — Masons' Marks—The Cathedrals of England, Germany, and France—Castles—Decay of Gothic Architecture—Revival of the Classic style—Elizabethan Architecture—Inigo Jones—Wren—Fire of London—St. Paul's—Alteration in the residences of the People—State of Public feeling at the present moment relative to Ecclesiastical Architecture—Evils to be guarded against—The Sanitary Question—Conclusion.

* "Historical Description of the Abbey and Town of Paisley," by Charles Mackie. Sold by Mr. Stewart, an intelligent publisher of the town.

† Spelled in the Records of Paisley, *Stewart*. Mary, Queen of Scots, appears to have been the first who changed it to Stuart.

church holds the first place. The body of the church was restored by Messrs. Burn and Brice, about eight years ago, but the tower, of early date, is in a miserable state of ruin. It is understood to be waiting the paternal care of the Woods and Forests, who have the maintenance of it; but it cannot afford to wait much longer.*

THE FALL OF THE SUGAR-HOUSE AT GLASGOW.

The cause of the recent accident in Alston-street, Glasgow—the fall of the sugar-house—will probably remain for ever in obscurity. The building was some seven stories high; and the whole of it fell, excepting the two end or gable walls. The whole interior had been renewed some five or six years ago, but not the walls, although they seem not to have been considered of a perfectly substantial kind. Perhaps an approximate to the truth is, that, in point of strength, the building had never been well calculated for the duty it had to perform; that its equipoise had been all but destroyed by the clearance made in some parts, and more close stowage in others, for the reception of a large addition to its heavy contents, which was immediately expected; and that the commencement of operations on the Monday morning, with the vibration caused by the machinery, were all that were wanted to completely destroy the balance, already tottering. It is said to have borne greater loads than that at the time of the accident; but the distribution of the load is important, as well as its weight.

This accident is full of suggestive interest, as regards the construction of buildings intended for the reception of weighty commodities: in particular, it directs attention to four things:—

1st. That rubble stone building is altogether unsuitable for such purposes; seeing that it only occupies an intermediate position, as regards strength, between building with boulders and building with stones wholly flat-bedded; and must, therefore, *in some measure*, be dependent for its stability on the cohesive property of the mortar.

2nd. That the walls of lofty storehouses should not be—as they usually are, in Glasgow—built of one uniform thickness from the ground to the summit; for the higher they go they have the less to sustain; and at the same time the upper becomes the greater load upon the lower portions, which may frequently, where the goods stored and machinery employed are of a very heavy description, be nigh *crushing* under the pressure.

3rd. That the well-known most active agents for producing decomposition in timber—heat and moisture combined—render vigilance essential in such buildings as the one referred to, where the floors are at once subject to these injurious influences, and loaded sufficiently to test their strength in their best condition. The impossibility of getting timbers "thoroughly seasoned and perfectly dry" is conclusive against the practice here of inserting the ends of all beams and joists into the solid walls, where their internal moisture is prevented escaping by the pores, and must, therefore, engender incipient decay.

4th. That care should be taken to ascertain that the hollow in the cast-iron pillars employed is perfectly concentric with the exterior; for it frequently happens that it is far from being so, and the greatest danger may impend where there seems perfect security. The new invention of casting pillars and pipes in a vertical instead of oblique mould seems well worthy of attention, both on this account and the more uniform density of the metal all round which it is likely to afford.

James Wylson.

* Making some inquiry concerning the stone of the district, Mr. James Mac-Laren, a young architect of the town, to whom, by the way, the Soane medallion is to be presented at the Institute on Monday, for the best design for public baths, informed us that the Mylnefield or Kingoodie quarry, 4½ miles west from Dundee, close on the Tay (which facilitates shipment), produces excellent liver rock of a greyish colour,—price in the quarry about 1s. per cubic foot. The Lochee quarries, 3 miles N. W. from Dundee, produce rock of reddish and bluish colours,—price about 9d.—All the Forfarshire stones are hard in comparison with Fifeshire and Glasgow stones.

ANOTHER LANCE FOR THE OLD MASTERS.

Sir,—I regret that, owing to a temporary absence from home, I did not sooner see the remarks of "An Artist," in your number of the 4th inst. I should have certainly replied to them in your next publication, which I am now unable to do. This, however, may be counterbalanced by the opportunity, with which, I trust, your kindness will indulge me, of a full rejoinder. I am unwilling to have the character of pertinacity assigned to me, but I feel it impossible to submit, unanswering, to the misrepresentation of your correspondent—a misrepresentation, I must add, not the less real because, I am sure, from the tone that the gentleman adopts, it must on his part be entirely unintentional.

I am assumed to be the opponent of Mr. Cave Thomas, and the decrier of modern art. I should be truly sorry to appear in either character. I admire the philosophical spirit of the lectures; and esteem any individual who argues upon art, in the spirit of enlightened criticism, with the view of probing its first principles, and eliciting its power as a moral agent—a true public benefactor. I fully acknowledge also, that, in regard to many branches of the arts, we have men who not only equal but excel the ancients. I have ventured, however, to assume that the results of experience may be at least of some value, and that it is unwise to neglect them. As a proof of the estimation in which we ought to hold them, I have quoted the dicta of Reynolds,—an antiquated authority, perhaps, in the eyes of your correspondent, but one whose works, as I heard Sir Martin Shee pronounce at a dinner within the walls of the Royal Academy, hold, *upon the whole*, in the English school, a proud and unqualified pre-eminence. And when I speak of the National Gallery as superior to the Royal Academy, I do so in no depreciatory spirit, but merely as arguing from an acknowledged fact, which I do not understand "An Artist" himself to dispute, that the moderns have in their predecessors' works a fund of useful knowledge, from which they may gather both valuable hints and bright examples. The better, however, to make my position understood, I will state *the two points* in which I think Mr. Cave Thomas has departed from that safe line of moderation,—that *viâ media*, which is alone likely to create public respect for his authority.

1. From his inculcation of the study of "nature," without qualification or reserve, resting upon a supposed "dictum" of Mr. Burke's, that "art cannot give rules to or be founded on art," but which I have endeavoured to shew that Mr. Burke used in a very qualified sense, he would lead the reader to imagine that he values at a very low estimate the results of experience, and considers the study of antiquity more likely to cramp than to develop true genius. These broad assertions, and sweeping conclusions, I have endeavoured rather to qualify than to contradict, by observing that the study of antiquity, properly undertaken, does not preclude, but rather assists, the study of nature; and that it is to this *double* course of training—this reliance upon a *twofold* course of education, rather than to a cold and intellectual study of nature's laws alone,—that the accomplished artist—be he architect, sculptor, or painter—is likely to owe the happiest results. Just as literature and classical taste have ever been held to go hand in hand with knowledge and the sterner investigation of truth, in forming and moulding the ideal of a perfectly well-educated mind,—so in any attempt to sketch the qualifications of the artist, we ought not to confine ourselves to *one* branch of his profession alone—to tell him, for instance, that it is his duty to give us nature, simple truth. No; he should give us nature in her most *agreeable* garb, and truth in such a manner as may *powerfully influence both our hearts and minds*;—not a mere copy of any indifferent sample, but a noble attempt to attain to the highest perfection. I am extremely happy to add, that this appears to me the line you inculcate in your journal; where I see brought forward, not only examples from the book of nature, but enlightened criticisms upon the best works both of modern and ancient art.

In natural accordance with this one-sided view of the question, Mr. Cave Thomas seemed to me to imagine that the study of antiquity was a waste of time, and the sums laid out upon ancient pictures a waste of cash. He broached in no measured terms the maxim of the political economist, that a supply would ever meet the demand, and advocated the withdrawal of those sums which have hitherto been expended on ancient classical works of art, for the purpose of encouraging the artists of our own day. To this I ventured to make reply, that in accordance with him I would willingly see the sums expended upon art increase, but that I held the love of antiquity, *per se*, to be so important, and the Italian school of painting in particular, to contain so much worthy of imitation, that I should most unwillingly see the public taste withdrawn from these "old paths," and that if it were so modern art itself would, I thought, be the first to suffer. I pointed out that in some particulars, as I conceived, the public taste for antiquity might take a higher direction. In this Mr. Cave Thomas and myself are, I fancy, agreed; but I must repeat it again and again, that my simple position has been directed to this object alone, "to vindicate the claims of an enlightened experience." Those who think that antiquity can afford no examples either of enlightenment or skill, are persons who can afford me a satisfactory and intelligible reply. Others can scarcely do so without being inconsistent.

And here I must retort, upon those who accuse me of inconsistency, the same charge. I am told by "An Artist" that Overbeck was one who, to attain a like perfection with Raffaelle, reverted to the works of his predecessors, because in their less sophisticated designs he found a powerful antidote to the false taste and pseudo-classical style everywhere prevalent. This being accomplished, he went to nature. What, I ask, is this but an appeal to antiquity? Oh, it may be replied, he now relies solely on nature. Well, sir, have I ever advocated a neglect of nature? far from it, indeed. But I would ask any candid critic whether the seal and impress of his earlier studies does not remain indelibly stamped upon the works of Overbeck himself, and bear its fruit in a close, and to me, I own, somewhat servile and painful imitation of the works of the very early masters. The early masters, I am told again, are not to be admired, unless I choose to forswear all love for the great names which have illustrated the history of the sixteenth and seventeenth centuries; but I have yet to learn by what iron despotism of taste I am to be prevented from admiring different masters for qualities totally different. May I not go as a pilgrim to Pisa, and meditate in the campo santo on the profound feeling and deep pathos of the early schools, without disqualifying myself for a visit to the Sistina Cappella and the glorious treasures of Venice. Does not art contain two great divisions?—the execution and the spirit. May not the execution, as in the case of the Flemish schools (those followers of *nature!*), be exquisite and almost faultless, and the spirit be mean and ignoble; while, in the early schools of Italy, we find the exact *contradictory* (to use a logical term) of this—a spirit of fervid piety and holiness, which nothing at the present day can approach, but an execution in a thousand particulars faulty and imperfect. On looking to execution, may not execution again be divided into three main divisions,—to wit: form, or drawing, a knowledge of light or shadow, or effect, and colour? Now, it is scarcely to be expected that the same artist should excel in these three departments. May I not, then, without an imputation of inconsistency, praise Raffaelle and Michelangelo for their grand forms and noble composition? may I not admire Tintoretto and Rubens for their knowledge of light and shadow; and Titian or Guercino, or Rubens (here also truly great), or Paolo Veronese, for their gorgeous and effective colouring. May I not, or rather ought I not, to admire, follow, and imitate every mind which, by its originality, greatness, and masculine vigour of thought, shews itself one of those intellects which the Creator has destined to be truly leading stars in that multitude of beings with whom he has adorned the civilized world. I can conceive, indeed, that if I were, from a false notion of consistency, to limit myself to one school alone, I might incur many of those dangers

with which Mr. Thomas threatens the followers of the old masters; but it is in a great measure because I would, if possible, glean from each those qualities and those alone in which they were decidedly pre-eminent, that I trust those who follow this advice may be free from that narrow spirit which all exclusiveness engenders.

I admit fully that among many of our connoisseurs there is a narrow and unenquiring spirit, which seeks for the works of ancient schools on account of their reputation rather than their real merit, but I would also urge that there is in the modern school a lamentable ignorance of the scientific principles and practice of former times, and a straining after originality without either the knowledge or the feeling to stamp their productions with the seal of genius. To select examples of this would be invidious; but I must, in passing, justify my former remark on Edwin Landseer. He is an animal painter; it is, therefore, no reproach to him to paint "the dog," but rather his highest glory to invest that noble beast with the spirit which truly fits him to be the companion of man—almost "admitted," to use the words of the poet, "to an equal sky." My reproach to that eminent artist was, that in obedience to the taste of wealthy patrons (not, I am sure, to his own) he had sometimes deviated from that high tone always observable in his earlier works, and made "the dog" no longer the faithful friend, but the uninteresting, or idle plaything.

To conclude: I am not so sanguine as Mr. Thomas of our surpassing the ancients. We may be greater than they were in our own way; they will probably remain greater than us in their own. Our grand difficulty is, that we live in an age when civilization and refinement have been so far extended, that we no longer produce the same vigour in individuals, though the masses are daily advancing in knowledge, and in all the constituents of true power. The world is no longer in its youth—the age of poetry has gone by. Accurate descriptive writing has succeeded the natural vigour of thought to be found in our ancestors. A knowledge of details has superseded the grasp of first principles. We do not live in an age of great men. Not that I would deny the unspeakable blessings with which we are surrounded, but we have inherited from our ancestors a store-house of treasures, to which, in many respects, it is impossible to add. The edifice has been planned by them—nay, built,—ours is the lighter labour of adding the graceful ornament, or finishing the glittering pinnacle. We find modern students daily adding to the treasures and to the beauty of our dwelling place. A Herschel, an Owen, an Airey, and many, many more, are amongst us, to prove the vitality of our body-politic, and the incessant activity of thought and action, which is the very mainspring and soul of modern society. But they have entered into the labours of a Newton, a Cuvier, or a Halley. So it is in the arts. We are in the "latter days," when caution and prudence have succeeded to vigour and masculine energy. It is, perhaps, by not attempting too much that we are likely to succeed best; by patient observation, diligent research, and by each selecting that particular branch in which he is best able to excel, and adhering to that; lastly, by inculcating, in all classes of the people, a love of what is beautiful for its own sake, and by placing before them the best examples of the best times. He is a fortunate man, who, as a mere connoisseur, loves "art" for its own sake; but he is even more so who cannot merely do this, but who can look upon art as the hand-maid of religion, of history, and of science, and can perceive in her works both the faithful exposition of past ages, and the means of instructing future generations in the history of their kind, and the mysterious beauties of the works of God.

AN AMATEUR.

P.S. Since writing the above, I have seen Mr. Cave Thomas's last letter, but am not aware that it calls for any special remark.

THE ARCHITECTURAL PUBLICATION SOCIETY is making satisfactory progress. There are now 305 subscribers, and local secretaries have been appointed in various places, including two in Arabia and one in Jamaica!

DECORATION OF THE ORIENTAL CLUB, HANOVER-SQUARE, LONDON.

MR. LEONARD COLLMANN, of whose works as a decorator at St. Robert Peel's and elsewhere we have had occasion to speak before this, has just now completed the decoration of the drawing-room and two libraries of the Oriental Club.

The club intending to spend o nly limited sum of money on the repainting and embellishing of these rooms, a style of decoration has been adopted, in which, by simple means, and without the aid of superior artistic talent in the execution, considerable effect can be produced; moreover, it is one very suitable for public buildings, and more particularly so in this instance, the architecture being in style Greek-ish, if not Greek. That is, the ornament is all painted perfectly flat, and mosaic-like. The effect produced solely relying on the merits of the general design, and on the arrangement of colour, the execution requires no more than great nicety in the workmen. The general design and the ornamental details are of a strictly architectural character, and the only painting in light and shade introduced is in two figures, Europe and Asia, in the niches of the drawing-room. Strong colours were chosen for the walls, in order to add to the rooms a degree of comfort and richness which lighter colours could not have produced, and which was the more desirable, as curtains to the windows are entirely dispensed with. The general tone of the drawing-room is red, and that of the libraries green. Some full-length portraits, formerly in large and clumsy gilt frames, projecting nearly a foot, have been fixed to the walls, and enclosed with suitable gold panel mouldings, so that they now form as it were a part of the room, and do not obtrude by any overpowering quantity of gold. The door and window architraves, as also the dados, are painted in imitation of marbles (and exceedingly well done), and the doors and shutters in imitation of woods, suiting the arrangement of colour in the various rooms. The result of the whole is very satisfactory.

PROPOSAL FOR ESTABLISHING AN ARCHITECTS', ENGINEERS', AND ARTISTS' CLUB.

WE have received the following proposal for the establishment of a club for architects, engineers, and artists, and willingly give it place, with the view of eliciting the opinion of the professions upon it. Letters addressed to us on the subject shall be seen by the projectors of the association.

At the present day, when the utility and attractions of clubs are so universally admitted, it is a subject of surprise that so large and important a body as the architects, engineers, and artists generally, can boast of no institution of that nature.

Whilst nearly every other body of men, every other vocation and calling, from the Church to the Stock Exchange, have their respective places of re-union, those who contribute so largely to the fame and honour of our country are unrepresented and disunited. It were greatly to be desired for the interests of those professions, and for the equally important purpose of promoting a spirit of good fellowship and unanimity amongst the members, that some institution could be created, possessing not only the recommendation of acting as a social nucleus for those members resident in the metropolis, but of serving also as a home to those who reside in the country, and who, when summoned to London by business or other causes, are in the generality of instances subjected to the comparative discomforts and expense of hotels and lodging-houses. In the full assurance, therefore, that the want of such an institution as is now contemplated, must be sensibly felt by nearly every individual connected with the profession of engineers, architects, and the fine arts, and that a proposal for the formation of a club will meet with the hearty co-operation of each one interested in the measure, the following outline is submitted for their consideration.

It is proposed to establish a club in London, under the title of the ——, to which members of the architectural profession, professors of the fine arts, civil engineers, and contractors shall be admissible, the last mentioned under certain *limitations*. The entrance fee to be five guineas, and the yearly subscription three guineas. Foreign artists and members of the above professions, as well as those belonging to the British Colonies, to be admitted as honorary members of the club without entrance fee, and on payment, merely during residence in England, of such amount of subscription as may hereafter be determined on. Members to be elected by ballot. A committee of general management to be elected, in whom will be vested the necessary powers for the formation of the club, the appointment and salaries of the secretary, treasurer, and other officers. In order to obviate some of the disadvantages under which non-resident members are described as labouring, and which it is one of the objects of the proposed club to remedy, it is suggested that a *limited* number of non-resident members, not belonging to foreign countries or the British colonies, should be allowed the privilege of sleeping apartments at the club-house, on such conditions as the committee may specify. Such are a few of the leading features of the club which it is in contemplation to establish. The details of arrangement, &c., must necessarily be intrusted to a committee, which will be nominated as soon as a sufficient number of members have enrolled themselves to authorise the appointment of such committee, and furnish some guarantee for the vitality of the club in question.

It is believed practicable to obtain the co-operation of at least 1,000 members from the several professions to which this club has reference. This, at the proposed entrance fee of five guineas, would give 5,250*l.*, and the first year's subscription 3,150*l.*, making a sum of 8,400*l.*, a capital amply sufficient for all expenses; and it is confidently hoped, that in addition to the ordinary advantages of reading and writing-rooms which this club will possess in common with similar institutions, the funds will, in process of time, allow the formation of a valuable library of reference on all subjects relating to the arts and sciences.

This calculation, there is every reason to believe, is not based on any exaggerated expectations with respect to the success of the proposed scheme. There is no inconsiderable amount of wealth amongst the leaders of the different professions, and no want of that *esprit de corps*, without which no club or society can prosper or long exist. At the same time, the economical principles on which the club will be established and regulated will enable the junior members—those struggling onwards in pursuit of fame or fortune—to participate in an equal degree with their more fortunate brethren in all the social and professional advantages which the institution may afford.

NECESSITY FOR ATTENTION TO FORMS PRESCRIBED BY THE BUILDINGS ACT.

AWARD OF REFEREES.

IN the matter of a party wall between a house in Castle-street, Long Acre, and vacant ground at the corner of Endell-street, the owner of the house, Mr. Andrews, gave notice to the referees that it had been rendered ruinous and dangerous by the injudicious underpinning thereof, and by the operations of the building owner (of adjoining ground), Mr. Duncan, who, without the notice prescribed by the Act, "partly in mortar and partly in cement, in long and dangerous lengths, without proper care or shoring, had underpinned the said wall, and so far endangered the house as to cause a notice to be served from the overseers, under the 40th section of the said Act;" and he called for a survey of it, for the purpose of certifying the condition of such wall, and whether the whole or any part thereof ought to be repaired or pulled down and rebuilt, and that at the costs and charges of the building owner, Mr. Duncan.

The district surveyor reported that the said wall was ruinous and dangerous, and that it had been recently underpinned with brickwork throughout its whole length, and that such underpinning had not been done in a workmanlike and substantial manner, and had caused its ruinous and dangerous condition. Further, that it ought to be pulled down and rebuilt on its present site.

In reply, Mr. Duncan urged that the work had been done in a careful manner; secondly, that the wall had been in a ruinous and dangerous condition for a considerable time previous to the commencement of the underpinning; thirdly, that no injury, beyond such as could not be avoided by the exercise of any amount of skill, was occasioned by the underpinning; and, fourthly, that the said wall ought not to be rebuilt, inasmuch as Mr. Andrew's house has been condemned to be pulled down, and that any expense attending the pulling down or rebuilding of the said wall ought to be borne by the owner of the house; and that any injury to the premises, or inconvenience, would be amply compensated for by the payment of a sum not exceeding 10*l.*, regard being had to the large sum already expended in underpinning the wall, and to the circumstance that he waved any claim to any portion of the materials of such wall.

The referees awarded,—that Duncan had cut away and underpinned contrary to the Act, and for want of care had caused the ruinous condition of the wall; that the wall had been previously defective, but that, not having availed himself of the proceedings directed by the Act, he was not relieved from his liability; and they called upon him, at his own cost and charges, forthwith to pull down and rebuild the wall.

Expenses of office (5*l.* 13*s.* 11*d.*), and 2*l.* 2*s.* to district surveyor, to be paid by Duncan.

THE MANUFACTURE OF IRON IN SOUTH WALES.*

The iron trade of South Wales very much surpasses in magnitude that of any other district of the United Kingdom. From the mineral district of Monmouth and Glamorgan alone a supply of some four hundred thousand tons is annually conveyed to the sea. The whole district has been estimated to include an area of about 1,000 square miles. The Glamorganshire ore is almost entirely argillaceous, in balls or nodules, or in bands or strata, both enveloped in beds of indurated clay shale, or 'bind.' The Welsh ore contains about 33 per cent. of metal, and is probably about 3 per cent. richer than that of Staffordshire.

The materials employed in the reduction of iron are principally three. Firstly, the *iron-stone*; secondly, the *fuel*; and thirdly, the *flux*. The iron-stone, technically called 'mine,' is found in numerous thin bands dispersed among the coal measures. With it a considerable quantity of the slate clay or 'bind' is brought to the surface. Here it forms round the mouths of the working heaps termed 'spoil banks,' which disfigure the iron country. The 'mine' is carefully stacked, and after some months the 'bind' scales off, and a tribe of women and children, hammer in hand, complete this process. It is then roasted with coke in a kiln, and its weight reduced 20 to 40 per cent., when it is ready for the blast furnace.

Since the ore is a metallic oxide, it is necessary to expose it to some influence that will remove the oxygen, and thus liberate the metal. This is effected by the use of a fuel as near to pure carbon as is practicable. Formerly, in England, as now in Sweden, charcoal was the fuel employed, and it is still considered to be superior to any other. Small quantities of charcoal iron are indeed still prepared at Backbarrow and elsewhere in Westmoreland, for the manufacture of wire and other fabrics requiring great ductility; but much of the Backbarrow iron of commerce is innocent of any connection with the place whence it derives its name. Most of the iron of this country, which has been manufactured above a century, is charcoal iron, and the area bars and railings of the older parts of London are well known to and sought after by the dealers in old iron.

The importance of the subject of fuel to an iron-work may be conceived from the following statement:—Taking the annual domestic consumption of coal in Great Britain at 38,500,000 tons, and that consumed in the manufacture of pig and bar iron at an average of about 6 tons to the ton of metal, the consumption in this manufacture will be 8,750,000, or towards 9,000,000 of tons per annum, or nearly one quarter of the whole consumption. The consumption round Merthyr, for the year 1839, was nearly equal to that of an ordinary city of 1,450,000 inhabitants.

The flux combines with the earthy matter of the ore, as the fuel with its oxygen. The calcareous ores of Forest of Dean require an argillaceous flux, the argillaceous ores of Glamorgan a calcareous. In either case the lime and clay enter into combination, and leave the metal free.

The blast furnace, in which all the ingredients are to be combined, constitutes the prominent feature of the establishment. In Wales it is a gigantic kiln, in form of a truncated pyramid, measuring at base 30 to 50 feet each way, and at summit 25 to 30. It stands about 45 or 50 feet high, and within its top is placed a large cylindrical chimney, or tunnel head, rising about 12 feet more. Each face contains a large arched recess, gradually diminishing towards the centre of the structure, and intended for the entrance of the blast and the removal of the melted metal. The effect of a range of these huge black furnace towers looming through the smoke, and capped each by its flickering pyramid of flame, is very imposing. They confer upon the rest of the works that sort of character that castles, such as those of Dover, London, or Richmond, derive from their Norman keeps. The interior of the furnace is a double cone, in shape very much resembling an old fashioned decanter placed upon a funnel. The materials are put in at the top, and the products collected and removed by means of the pit at the bottom.

Where practicable, a blast-furnace is commonly built against the side of a hill, down fo
arrange
quiring
wheeled
are the
ings inte
the met
compose
quantity
that qua
ceives ab
twelve ho

To car
copious b
To effect
an iron g
diameter,
pressure o
inch, exer
away in t
are thus k
known for
by introdu
or 'tuyere,'
consequenc
upon its s
contents of
come solid
steam-engi
was first ap
and the 'm

A blowin
pour into it
air per hors
ing 30-hors
have a supp
feet. From
for waste an
3,500 cubic
blast furnac
twelve hours
about 88 to

A blast-fu
go out. Th
perpetual, a
performed a
furnaces will
At Dowlais,
kingdom, it
blast might
hours, and
been regular
keeping the blast-furnaces in general action causes a serious financial difficulty in the trade, since the iron master cannot readily reduce his 'make' to meet his orders.

In some works the supply of water is sufficiently copious to admit of its general use as a power in the place of steam. This is the case to a certain extent about Merthyr, where the Cyfarthfa water-wheels have long been celebrated for their size and excellent construction. The cost of a Welsh blast-furnace complete, with its share of the blast-engine and appendages, is estimated at about 6,500*l.*

The general theory of the changes effected in the blast-furnace is simple. In the upper part of the furnace the heat is sufficiently great to drive off any volatile substances that may have escaped the kiln or the coke-field, so that the materials reach the centre free from any extraneous matter, at a high temperature, and ready to form new combinations. The carbon of the fuel unites with the oxygen of the ore, and passes off as carbonic oxide gas. The limestone, reduced to its quick or caustic state, combines with the argillaceous part of the iron-stone to form a dense semi-vitreous slag or cinder. The metal, thus set free, melts and descends to the bottom of the furnace, to be from time to time let off. The slag rests upon the fluid metal and preserves it from the wasting action of the blast. The excess of slag flows over through a proper opening, and by its condition the workman judges of what is going forward within.

Furnaces generally work better in winter than in summer. Under favourable circumstances, the weekly 'make' or 'yield' of a Welsh furnace is from 60 to 100, or even 120 tons.

The furnaces are tapped twice in the twenty-four hours, when six tons is considered to be a good yield. The evening casting is a most beautiful spectacle. The furnace keeper, standing in the deep shade of the arch, breaks up, by the aid of a long bar, the clay with which the orifice is stopped. [illegible] a strong heat is kept up for two or three hours. The fused metal falls upon the hearth, and there receives the full force of the blast under circumstances highly favourable to the combination of its oxygen with the carbon of the metal. The refinery is fed from time to time with coke (or coal), but the supply of iron is given only at the commencement of the process.

As the iron fuses, the refuse or cinder is

* Condensed from *Westminster Review*.

Original
Defect

suffered to flow away. When the appearance of the metal informs the 'finer' that it has reached a certain stage of decarbonisation, he suffers it to escape into a broad shallow trough, exposing a large surface to the air, and he further aids the decarbonisation by the direction of a copious jet of water upon the fluid metal. Whatever the scientific results of this affusion may be, the apparent effect is a most active fume and splutter. Clouds of dense steam are thrown up, a horrible hissing is heard, and the stranger only stands still because he feels that in the mist he is just as likely to run into the furnace as to run away from it. This dreadful broil is by no means the least striking part of iron making. The loss during this process is about 10 per cent.

The iron, now called "finers' metal," has reached its first stage towards malleability, though apparently far less tractable than before. It has become highly infusible, hard, and brittle, even when hot. Its fracture is as white as silver, its lower surface dense, its upper full of flaws and air bubbles. The cakes are removed from the trough, broken up with sledge-hammers, and carried off to undergo the next process, that of *puddling*.

A *puddling-furnace* is of the reverberatory kind, and so constructed as to expose the almost fluid metal to a strong current of air. Here the requisite draught is obtained by a chimney and dampers. The metal is not in contact with the fuel, though exposed to its full heat. The metal here becomes viscid. The temperature is then lowered, the mass begins to bubble up, inflame, and give out [illegible]

The *balling-furnace* is of the reverberatory order, and very much resembles that used in puddling. In it the metal is raised to a second heat preparatory to a second rolling. Five or six of the short 'puddle bars' are piled flat upon each other upon a sort of long shovel. The 'baler' then slides them into the furnace as a baker his bread into the oven; and, finally, as each pile attains a cohering or welding heat, he withdraws it and passes it off to the mill, where it is converted into a smooth, well-compressed bar, of the required dimensions. The bar is next carried to the circular saw to have the rough, or 'scollop' ends cut off, and then laid upon an iron floor to be straightened, which, in the case of railway bars, is a delicate process. The bar is then weighed, and having received from a punch the maker's mark, it is ready to pass into the market as 'No. 2 bar iron,' or 'merchant bars.' The loss upon this second heating and rolling is estimated at about 10 per cent.

No. 2 bar, though sufficiently good for general purposes, is yet capable of being improved in the prime qualities of strength and malleability, by a repetition of the processes of cutting up, heating, and rolling, as No. 3, or 'best bar,' this being the best quality of iron usually manufactured in South Wales. Cable-iron, nail and wire rod, boiler-plate, and iron for similar purposes, is thus repeatedly heated and drawn out. What is called 'scrap-iron' is composed of old nails, saucepans, and 'scraps,' and odds and ends of metal. It is for this reason that scrap iron is of the very best quality, and is much employed for axles and the more important parts of locomotive engines. Scrap iron is not manufactured in Wales.

From the manner in which the parts composing a bar of rolled iron have been arranged, its structure somewhat resembles that of the grain of wood, and a good smith, like a good joiner, will always work up his material with [illegible] this grain, or, in the phrase of the [illegible] cording to the way of the pile.'

[illegible] incurred during the several stages [illegible] ufacture has already been stated. [illegible] numbers, 100 parts of raw mine [illegible] 33 parts of pig iron, and 20 to 25 [illegible] iron.

[illegible] tity of water used in an iron-work [illegible] siderable. Upon one occasion [illegible] r, a number of work-people were [illegible] ascend the furnace by ladders and [illegible] he office of the water, by descend- [illegible] lance bucket as a counterpoise to [illegible] g materials.

[illegible] en said that the quantity of air [illegible] blast furnace by the cold blast is [illegible] in the twelve hours. Now, it is [illegible] fact, that atmospheric air, below [illegible] ure of 1,000 degrees Fahrenheit, [illegible] port combustion.

[illegible] hat an accident suggested to Mr. [illegible] manager of the Clyde Works, the [illegible] ating this inconvenience, by the [illegible] the furnace of a blast of air pre- [illegible] d to a temperature as high as [illegible] ically be obtained.

[illegible] de Works, according to M. Du- [illegible] ort, one ton of metal was reduced [illegible] blast from 7 tons 17 cwt. of fuel, [illegible] ame fuel, under a blast heated to [illegible] ahrenheit, produced 2 tons 10 cwt. [illegible] uding the metal necessary to heat [illegible] in other words, gave a saving of [illegible] cent. upon fuel. The introduc- [illegible] ot blast was in fact the salvation [illegible] iron trade, which it immediately [illegible] most depressed to a flourishing

[illegible] blast was first introduced into [illegible] Dowlais Works. But though [illegible] Scotland, it is said that recent [illegible] shown the saving upon the [illegible] Welsh ores to be much less [illegible] and the hot blast has not been [illegible] eneral use in Wales.

[illegible] the Ystalafera works above [illegible] attempt has been made by Mr. [illegible] omise fuel, by conducting the [illegible] gaseous products from the [illegible] he blast-furnace to the steam- [illegible] owing-engine, and so as to heat [illegible] g the blast. It appeared that [illegible] nace, and with one boiler alone a saving was effected of 350*l.* per annum.

A THUMPER.—One solid block of Anglesea stone, weighing before dressing, twenty-seven tons, has just been placed in work as part of the coping of the arch over the western entrance of the tunnel, by the Bangor station of the Chester and Holyhead Railway. The arch is extremely massive, and must have cost an immensity of money.—*Welshman*.

RAILWAY JOTTINGS.

THE Railway Commissioners have begun to exercise their new power to extend the time for making railways. The *Gazette* of Tuesday week contains their formal certificate in favour of the Cornwall Railway and of the Delabole and York railways for an extension of time in carrying out their works. Railway companies are thus put in possession of a more expeditious and less expensive mode of proceeding than is involved in an application to Parliament. A large number have availed themselves of the relief. 125 applications have been received and considered: of these 121 have been entertained, and in most of the applications the extension of time asked for has been for the full additional term of two years allowed by the Act. The greater number include the whole of the railway and also of the lands to be taken. Four applications were refused on the ground that there were special provisions in the Act making the completion of the railway compulsory.—— The multitude of ever-recurring falsehoods, and contradictions of falsehoods, begotten by the want of confidence, alarm, and, it is to be hoped, groundless despondency in the world of railway news, almost prevents us from stating that among a number of similar reports it is said that 600 labourers have been discharged from that portion of the Manchester, Sheffield, and Lincolnshire line which is in course of construction near Sheffield. The extensive viaduct across the Wicker, however, is to be proceeded with; and operations are commenced for the re-erection of the 22 arches of the Rother viaduct, which recently fell.—— The works of the South Yorkshire line are said to be proceeding very rapidly and satisfactorily, especially in the neighbourhood of Conisbrough and Levitt Hagg. At the latter place, the work is heavy and tedious, the rock being to blast and cut to a depth of upwards of 70 ft. Near to Warmsworth church, where this line crosses a valley parallel with the river Don, at a distance of nearly 100 yards, an embankment is raised 30 or 40 feet high. The weight of this material is so great, that the land has given way, and pressed the river bank two or three yards further into the water, somewhat obstructing the river traffic.—— "It is a pretty generally received opinion," says *Herepath*, "that no other property has been so much depreciated as railway property. If parties will take the trouble to look about them, they will find themselves mistaken. How is it the buildings which were going on so rapidly a couple of years ago are so generally stopped? Where ten houses were building in 1845, we will venture to say there is not more than one, if so many, now. Why is this? People perhaps may answer, it is because there are too many built, that the supply is greater than the demand. There may be something in that, for that particular kind of property; but that is not admitted by builders to be an answer. They say it is a reluctance to lend money, that money is not to be obtained, and that when they have built houses they can find no purchasers. A similar observation we heard an eminent solicitor make the other day. If they apply to their clients to lend money on the best of freehold security on mortgage, it is not to be had. They shrug their shoulders and say, 'Under the present state of things we cannot venture to lend our money. We must have it where we can get it back at a very short notice, though it be at a less rate of interest.' That is the cry everywhere. *It is an utter prostration of confidence which is afflicting the world.* It is not a want of money, for perhaps it has rarely been in so great an abundance, but a want of confidence from day to day in the stability of our affairs." Have we not here something very like a secular phase of that desolate and universal *want of faith* predicted in the holy book of books, while wailing over all the agonies of travail through which the world, affrighted more than hurt, must enter on that new and glorious birth of power and goodness faith and truth, predicted by the apostles and their Lord and master?

COMPETITION.—Architects have been called upon to compete for the construction of a new training school for schoolmasters at Chichester, at a cost not exceeding 3,500*l.* Plans and specifications to be lodged before 7th Dec. next.

In reply, Mr. Duncan urged that the work had been done in a careful manner; secondly, that the wall had been in a ruinous and dangerous condition for a considerable time previous to the commencement of the underpinning; thirdly, that no injury, beyond such as could not be avoided by the exercise of any amount of skill, was occasioned by the underpinning; and, fourthly, that the said wall ought not to be rebuilt, inasmuch as Mr. Andrew's house has been condemned to be pulled down, and that any expense attending the pulling down or rebuilding of the said wall ought to be borne by the owner of the house; and that any injury to the premises, or inconvenience, would be amply compensated for by the payment of a sum not exceeding 10*l.*, regard being had to the large sum already expended in underpinning the wall, and to the circumstance that he waved any claim to any portion of the materials of such wall.

The referees awarded,—that Duncan had cut away and underpinned contrary to the Act, and for want of care had caused the ruinous condition of the wall; that the wall had been previously defective, but that, not having availed himself of the proceedings directed by the Act, he was not relieved from his liability; and they called upon him, at his own cost and charges, forthwith to pull down and rebuild the wall.

Expenses of office (5*l.* 13s. 11d.), and 2*l.* 2s. to district surveyor, to be paid by Duncan.

THE MANUFACTURE OF IRON IN SOUTH WALES.*

The iron trade of South Wales very much surpasses in magnitude that of any other district of the United Kingdom. From the mineral district of Monmouth and Glamorgan alone a supply of some four hundred thousand tons is annually conveyed to the sea. The whole district has been estimated to include an area of about 1,000 square miles. The Glamorganshire ore is almost entirely argillaceous, in balls or nodules, or in bands or strata, both enveloped in beds of indurated clay shale, or 'bind.' The Welsh ore contains about 33 per cent. of metal, and is probably about 3 per cent. richer than that of Staffordshire.

The materials employed in the reduction of iron are principally three. Firstly, the *iron-stone*; secondly, the *fuel*; and thirdly, the *flux*. The iron-stone, technically called 'mine,' is found in numerous thin bands dispersed among the coal measures. With it a considerable quantity of the slate clay or 'bind' is brought to the surface. Here it forms round the mouths of the working heaps termed 'spoil banks,' which disfigure the iron country. The 'mine' is carefully stacked, and after some months the 'bind' scales off, and a tribe of women and children, hammer in hand, complete this process. It is then roasted with coke in a kiln, and its weight reduced 20 to 40 per cent., when it is ready for the blast furnace.

Since the ore is a metallic oxide, it is necessary to expose it to some influence that will remove the oxygen, and thus liberate the metal. This is effected by the use of a fuel as near to pure carbon as is practicable. Formerly, in England, as now in Sweden, charcoal was the fuel employed, and it is still considered to be superior to any other. Small quantities of charcoal iron are indeed still prepared at Backbarrow and elsewhere in Westmoreland, for the manufacture of wire and other fabrics requiring great ductility; but much of the Backbarrow iron of commerce is innocent of any connection with the place whence it derives its name. Most of the iron of this country, which has been manufactured above a century, is charcoal iron, and the area bars and railings of the older parts of London are well known to and sought after by the dealers in old iron.

The importance of the subject of fuel to an iron-work may be conceived from the following statement:—Taking the annual domestic consumption of coal in Great Britain at 38,500,000 tons, and that consumed in the manufacture of pig and bar iron at an average of about 6 tons to the ton of metal, the consumption in this manufacture will be 8,750,000, or towards 9,000,000 of tons per annum, or nearly one quarter of the whole consumption. The consumption round Merthyr, for the year 1839, was nearly equal to that of an ordinary city of 1,450,000 inhabitants.

The flux combines with the earthy matter of the ore, as the fuel with its oxygen. The calcareous ores of Forest of Dean require an argillaceous flux, the argillaceous ores of Glamorgan a calcareous. In either case the lime and clay enter into combination, and leave the metal free.

The blast furnace, in which all the ingredients are to be combined, constitutes the prominent feature of the establishment. In Wales it is a gigantic kiln, in form of a truncated pyramid, measuring at base 30 to 50 feet each way, and at summit 25 to 30. It stands about 45 or 50 feet high, and within its top is placed a large cylindrical chimney, or tunnel head, rising about 12 feet more. Each face contains a large arched recess, gradually diminishing towards the centre of the structure, and intended for the entrance of the blast and the removal of the melted metal. The effect of a range of these huge black furnace towers looming through the smoke, and capped each by its flickering pyramid of flame, is very imposing. They confer upon the rest of the works that sort of character that castles, such as those of Dover, London, or Richmond, derive from their Norman keeps. The interior of the furnace is a double cone, in shape very much resembling an old fashioned decanter placed upon a funnel. The materials are put in at the top, and the products collected and removed by means of the pit at the bottom.

Where practicable, a blast-furnace is commonly built against the side of a hill, scarped down for that purpose, and the minerals are all arranged upon a platform at the summit, requiring only to be loaded, measured, and wheeled in. Below, in front of the furnace, are the cast-house, refinery, and other buildings intended for the immediate reception of the metal. Speaking generally, a charge is composed of about 6 cwt. of coke, the same quantity of mine, and rather above a third of that quantity of limestone. The furnace receives about fifty such charges in a 'turn' of twelve hours.

To carry forward so rapid a combustion a copious blast must be forced into the furnace. To effect this, a steam-engine pumps air into an iron globe or reservoir, 18 to 25 feet in diameter. Here the air, condensed under a pressure of about 2½ pounds on the square inch, exerts an expansive force, and is led away in tubes to the several furnaces, which are thus blown with a blast of uniform and known force. The blast-pipes are kept cool by introducing them through a double funnel or 'tuyere,' filled with water. Of such great consequence is the regularity of the blast, that upon its stoppage for any length of time, the contents of a furnace have been known to become solid. Under such circumstances the steam-engine is a most valuable auxiliary. It was first applied to the blast-furnace in 1770, and the 'make' of iron was speedily doubled.

A blowing engine has been calculated to pour into its receiver about 137 cubic feet of air per horse power per minute, so that, allowing 30-horse power to each furnace, we shall have a supply per minute of about 4,000 cubic feet. From this let one-eighth be deducted for waste and the service of the 'finery,' and 3,500 cubic feet will remain to pass into each blast furnace, being at the rate per turn of twelve hours of 2½ millions of cubic feet, or about 88 to 90 tons weight of air.

A blast-furnace should never be suffered to go out. The supply at the top should be perpetual, and the tapping at the bottom be performed at regular intervals. In this way furnaces will remain in blast for many years. At Dowlais, the largest iron-work in the kingdom, it was found, however, that the blast might be stopped on Sundays for eight hours, and this has since, in these works, been regularly practised. This necessity for keeping the blast-furnaces in general action causes a serious financial difficulty in the trade, since the iron master cannot readily reduce his 'make' to meet his orders.

In some works the supply of water is sufficiently copious to admit of its general use as a power in the place of steam. This is the case to a certain extent about Merthyr, where the Cyfarthfa water-wheels have long been celebrated for their size and excellent construction. The cost of a Welsh blast-furnace complete, with its share of the blast-engine and appendages, is estimated at about 6,500*l.*

The general theory of the changes effected in the blast-furnace is simple. In the upper part of the furnace the heat is sufficiently great to drive off any volatile substances that may have escaped the kiln or the coke-field, so that the materials reach the centre free from any extraneous matter, at a high temperature, and ready to form new combinations. The carbon of the fuel unites with the oxygen of the ore, and passes off as carbonic oxide gas. The limestone, reduced to its quick or caustic state, combines with the argillaceous part of the iron-stone to form a dense semi-vitreous slag or cinder. The metal, thus set free, melts and descends to the bottom of the furnace, to be from time to time let off. The slag rests upon the fluid metal and preserves it from the wasting action of the blast. The excess of slag flows over through a proper opening, and by its condition the workman judges of what is going forward within.

Furnaces generally work better in winter than in summer. Under favourable circumstances, the weekly 'make' or 'yield' of a Welsh furnace is from 60 to 100, or even 120 tons.

The furnaces are tapped twice in the twenty-four hours, when six tons is considered to be a good yield. The evening casting is a most beautiful spectacle. The furnace keeper, standing in the deep shade of the arch, breaks up, by the aid of a long bar, the clay with which the orifice is stopped, the blast is for a moment cut off, the full depth of the arch becomes lighted up, and the metal, foaming and sparkling with a light not endurable by the unpractised eye, gushes forth in a single stream.

The flow of the metal in the main trench or 'sow' is so regulated, that each of the side trenches or 'pigs' shall receive a full trough, or about one hundred weight of metal. Whilst this is going forward the furnace shoots up a vast volume of flame, accompanied by a brilliant shower of sparks, so that the act of casting is proclaimed for many miles around. When the iron has been run out, the "sow and pigs" are covered up with sand to cool, and the works are restored to comparative tranquillity for the next twelve hours.

The loss by this process is estimated at about 40 per cent., being 60 to 70 per cent. upon this and the preceding operations, so that three tons of raw 'mine' may be taken as producing one ton of pig iron.

Carbon seems to bestow a certain degree of softness, toughness, and fusibility upon the metal, and, therefore, pig iron moderately carbonised is more valuable for conversion into bar-iron than the metal in a purer state.

Castings direct from the blast-furnace are of an inferior description. The quality of the metal is uncertain, and the arrangements of the place and the habits of the people are unfavourable for delicate operations. Heavy castings, however, as fly-wheels and shafts, and the ordinary castings for the use of the works, are always 'run' on the spot, and commonly direct from the blast-furnace. Pig-iron, as an article of export, is purchased by founders and machinists, who, by melting down pigs of different qualities in their smaller furnaces, are able to produce a homogeneous metal of almost any quality, and of equable powers of contraction throughout the mass. The principal quantity, however, of Welsh pig-iron is converted on the spot into malleable-iron by a series of processes, of which refining is the first.

The *refinery* is a broad shallow hearth, closed permanently at the two sides, open in front, and capable of being closed behind by means of a pair of iron folding doors. Above is a low chimney. In this furnace a proper charge of coke and pig-iron is placed. Two blasts, one on each side, are set in action, and a strong heat is kept up for two or three hours. The fused metal falls upon the hearth, and there receives the full force of the blast under circumstances highly favourable to the combination of its oxygen with the carbon of the metal. The refinery is fed from time to time with coke (or coal), but the supply of iron is given only at the commencement of the process.

As the iron fuses, the refuse or cinder is

* Condensed from *Westminster Review*.

suffered to flow away. When the appearance of the metal informs the 'finer' that it has reached a certain stage of decarbonisation, he suffers it to escape into a broad shallow trough, exposing a large surface to the air, and he further aids the decarbonisation by the direction of a copious jet of water upon the fluid metal. Whatever the scientific results of this affusion may be, the apparent effect is a most active fume and splutter. Clouds of dense steam are thrown up, a horrible hissing is heard, and the stranger only stands still because he feels that in the mist he is just as likely to run into the furnace as to run away from it. This dreadful broil is by no means the least striking part of iron making. The loss during this process is about 10 per cent.

The iron, now called "finers' metal," has reached its first stage towards malleability, though apparently far less tractable than before. It has become highly infusible, hard, and brittle, even when hot. Its fracture is as white as silver, its lower surface dense, its upper full of flaws and air bubbles. The cakes are removed from the trough, broken up with sledge-hammers, and carried off to undergo the next process, that of *puddling*.

A *puddling-furnace* is of the reverberatory kind, and so constructed as to expose the almost fluid metal to a strong current of air. Here the requisite draught is obtained by a chimney and dampers. The metal is not in contact with the fuel, though exposed to its full heat. The metal here becomes viscid. The temperature is then lowered, the mass begins to bubble up, inflame, and give out a gaseous compound of carbon and oxygen. Its powers of cohesion become suspended, and it falls almost like powder. A vapour arises from it, the temperature is again raised, and the puddler, by the aid of a long bar, kneads up the metal into a ball of from 80 to 90 lbs. weight. This ball is then seized upon by the helper and dragged along the iron floor as a 'puddle-ball,' a glowing mass of impure iron, next to be subjected to the discipline of the *hammer*, weighing 4 to 5 tons, tilted by the engine, and striking 100 to 120 blows per minute. Under this process the cinder, oxide, and other impurities connected with the iron, are violently jerked out, and the ball is beat into a dense angular bar or ingot, called a 'bloom.' In some works a 'pressure' is substituted for the hammer. The loss upon the processes of puddling, tilting, and the first rolling, is estimated at about 10 or 12 per cent.

With the hammer commences that division of the works called the *forge*, the more interesting because the processes are carried on under the eye of the spectator, and not, as before, in a close furnace. From the hammer the bloom is conveyed, still in a red-hot state, to

The *rolling-mill*, composed of two strong heavy parallel rollers of cast iron, cast with great care under a weight that ensures solidity, case-hardened, and turned truly cylindrical in the lathe. These, placed at a certain distance apart, are made by machinery to revolve each upon its own axis, but in opposite directions, so that their tendency, when in motion, is to draw in any body presented to them on the one side, and having compressed it, to force it out again upon the other. A rolling-mill is, in fact, a kind of press, and one mill differs from another in the size and strength of its 'parts,' and in the pattern of certain grooves cut upon their circumference, by means of which the bar is reduced to the required figure.

The 'bloom' leaves the mill as a bar about 15 feet long, and three inches broad by one thick This bar is immediately placed under a pair of shears, and cut up into short lengths, which being stacked upon a wheelbarrow are trundled off, still in a hot state, to the 'balling-furnace,' as 'puddle-bars,' or 'No. 1 bar iron.'

The *balling-furnace* is of the reverberatory order, and very much resembles that used in puddling. In it the metal is raised to a second heat preparatory to a second rolling. Five or six of the short 'puddle bars' are piled flat upon each other upon a sort of long shovel. The 'baler' then slides them into the furnace as a baker his bread into the oven; and, finally, as each pile attains a cohering or welding heat, he withdraws it and passes it off to the mill, where it is converted into a smooth, well-compressed bar, of the required dimensions. The bar is next carried to the circular saw to have the rough, or 'scollop' ends cut off, and then laid upon an iron floor to be straightened, which, in the case of railway bars, is a delicate process. The bar is then weighed, and having received from a punch the maker's mark, it is ready to pass into the market as 'No. 2 bar iron,' or 'merchant bars.' The loss upon this second heating and rolling is estimated at about 10 per cent.

No. 2 bar, though sufficiently good for general purposes, is yet capable of being improved in the prime qualities of strength and malleability, by a repetition of the processes of cutting up, heating, and rolling, as No. 3, or 'best bar,' this being the best quality of iron usually manufactured in South Wales. Cable-iron, nail and wire rod, boiler-plate, and iron for similar purposes, is thus repeatedly heated and drawn out. What is called 'scrap-iron' is composed of old nails, saucepans, and 'scraps,' and odds and ends of metal. It is for this reason that scrap iron is of the very best quality, and is much employed for axles and the more important parts of locomotive engines. Scrap iron is not manufactured in Wales.

From the manner in which the parts composing a bar of rolled iron have been arranged, its structure somewhat resembles that of the grain of wood, and a good smith, like a good joiner, will always work up his material with reference to this grain, or, in the phrase of the smithy, 'according to the way of the pile.'

The waste incurred during the several stages of the manufacture has already been stated. In round numbers, 100 parts of raw mine yield about 33 parts of pig iron, and 20 to 25 of best bar iron.

The quantity of water used in an iron-work is very considerable. Upon one occasion near Merthyr, a number of work-people were employed to ascend the furnace by ladders and to perform the office of the water, by descending in the balance bucket as a counterpoise to the ascending materials.

It has been said that the quantity of air forced into a blast furnace by the cold blast is about 88 tons in the twelve hours. Now, it is a well-known fact, that atmospheric air, below the temperature of 1,000 degrees Fahrenheit, does not support combustion.

It is said that an accident suggested to Mr. Neilson, the manager of the Clyde Works, the idea of obviating this inconvenience, by the injection into the furnace of a blast of air previously heated to a temperature as high as could economically be obtained.

In the Clyde Works, according to M. Dufresnoy's report, one ton of metal was reduced by the cold blast from 7 tons 17 cwt. of fuel, whereas the same fuel, under a blast heated to 612 degrees Fahrenheit, produced 2 tons 10 cwt. of metal, including the metal necessary to heat the air; or, in other words, gave a saving of nearly 70 per cent. upon fuel. The introduction of the hot blast was in fact the salvation of the Scotch iron trade, which it immediately raised from a most depressed to a flourishing condition.

The hot blast was first introduced into Wales at the Dowlais Works. But though successful in Scotland, it is said that recent experience has shown the saving upon the smelting of the Welsh ores to be much less considerable; and the hot blast has not been received into general use in Wales.

Recently, at the Ystalafera works above Swansea, an attempt has been made by Mr. Budd to economise fuel, by conducting the heated air and gaseous products from the upper part of the blast-furnace to the steam-boilers of the blowing-engine, and so as to heat the air forming the blast. It appeared that upon one furnace, and with one boiler alone a saving was effected of 350*l.* per annum.

A THUMPER.—One solid block of Anglesea stone, weighing before dressing, twenty-seven tons, has just been placed in work as part of the coping of the arch over the western entrance of the tunnel, by the Bangor station of the Chester and Holyhead Railway, The arch is extremely massive, and must have cost an immensity of money.—*Welshman*.

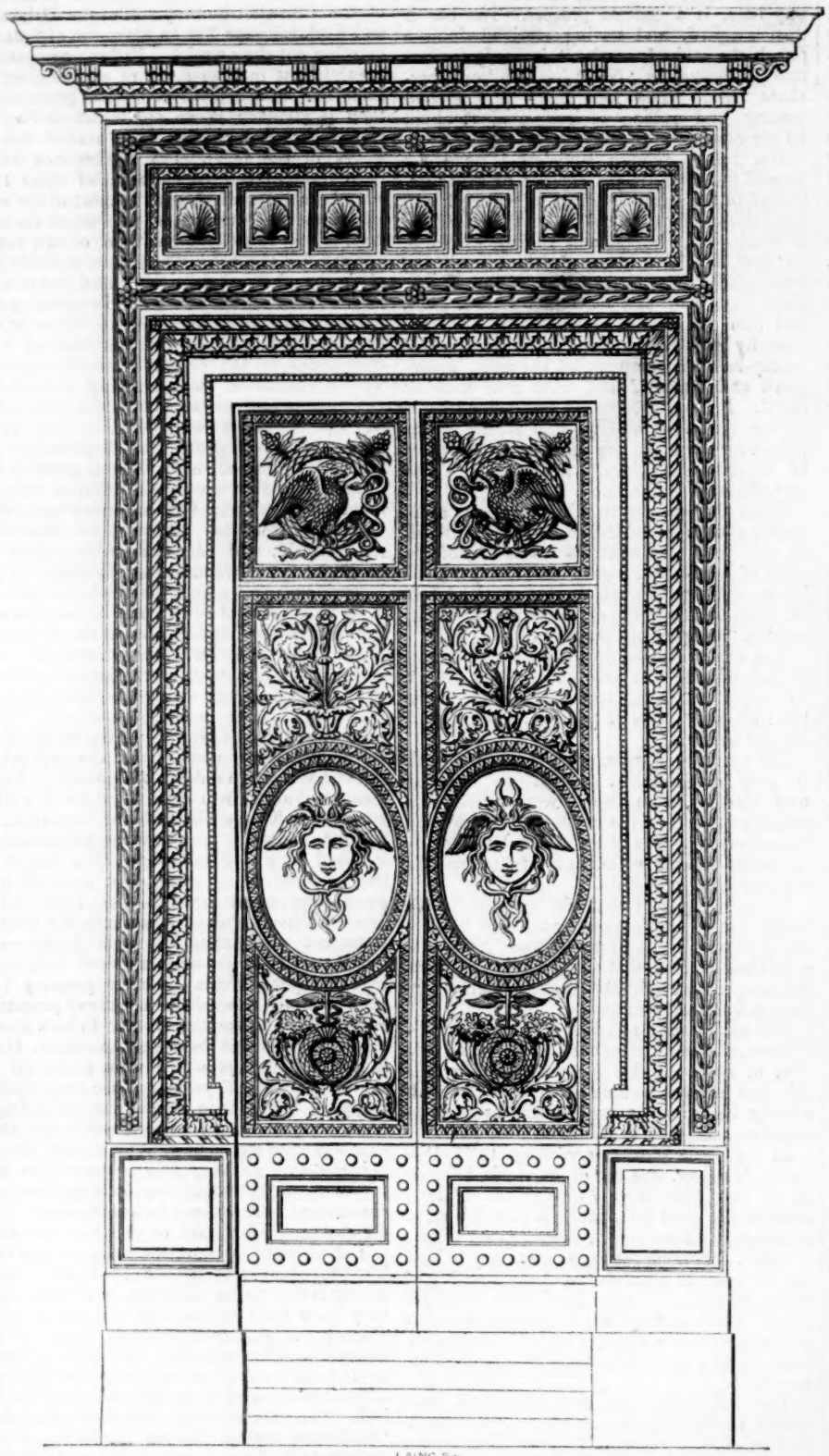
RAILWAY JOTTINGS.

THE Railway Commissioners have begun to exercise their new power to extend the time for making railways. The *Gazette* of Tuesday week contains their formal certificate in favour of the Cornwall Railway and of the Delabole and York railways for an extension of time in carrying out their works. Railway companies are thus put in possession of a more expeditious and less expensive mode of proceeding than is involved in an application to Parliament. A large number have availed themselves of the relief. 125 applications have been received and considered: of these 121 have been entertained, and in most of the applications the extension of time asked for has been for the full additional term of two years allowed by the Act. The greater number include the whole of the railway and also of the lands to be taken. Four applications were refused on the ground that there were special provisions in the Act making the completion of the railway compulsory.—— The multitude of ever-recurring falsehoods, and contradictions of falsehoods, begotten by the want of confidence, alarm, and, it is to be hoped, groundless despondency in the world of railway news, almost prevents us from stating that among a number of similar reports it is said that 600 labourers have been discharged from that portion of the Manchester, Sheffield, and Lincolnshire line which is in course of construction near Sheffield. The extensive viaduct across the Wicker, however, is to be proceeded with; and operations are commenced for the re-erection of the 22 arches of the Rother viaduct, which recently fell.—— The works of the South Yorkshire line are said to be proceeding very rapidly and satisfactorily, especially in the neighbourhood of Conisbrough and Levitt Hagg. At the latter place, the work is heavy and tedious, the rock being to blast and cut to a depth of upwards of 70 ft. Near to Warmsworth church, where this line crosses a valley parallel with the river Don, at a distance of nearly 100 yards, an embankment is raised 30 or 40 feet high. The weight of this material is so great, that the land has given way, and pressed the river bank two or three yards further into the water, somewhat obstructing the river traffic.—— "It is a pretty generally received opinion," says *Herepath*, "that no other property has been so much depreciated as railway property. If parties will take the trouble to look about them, they will find themselves mistaken. How is it the buildings which were going on so rapidly a couple of years ago are so generally stopped? Where ten houses were building in 1845, we will venture to say there is not more than one, if so many, now. Why is this? People perhaps may answer, it is because there are too many built, that the supply is greater than the demand. There may be something in that, for that particular kind of property; but that is not admitted by builders to be an answer. They say it is a reluctance to lend money, that money is not to be obtained, and that when they have built houses they can find no purchasers. A similar observation we heard an eminent solicitor make the other day. If they apply to their clients to lend money on the best of freehold security on mortgage, it is not to be had. They shrug their shoulders and say, 'Under the present state of things we cannot venture to lend our money. We must have it where we can get it back at a very short notice, though it be at a less rate of interest.' That is the cry everywhere. *It is an utter prostration of confidence which is afflicting the world.* It is not a want of money, for perhaps it has rarely been in so great an abundance, but a want of confidence from day to day in the stability of our affairs." Have we not here something very like a secular phase of that desolate and universal *want of faith* predicted in the holy book of books, while wailing over all the agonies of travail through which the world, affrighted more than hurt, must enter on that new and glorious birth of power and goodness faith and truth, predicted by the apostles and their Lord and master?

COMPETITION.—Architects have been called upon to compete for the construction of a new training school for schoolmasters at Chichester, at a cost not exceeding 3,500*l.* Plans and specifications to be lodged before 7th Dec. next.

METAL DOORS FOR MUSEUM OF ECONOMIC GEOLOGY.

MR. PENNETHORNE, ARCHITECT.



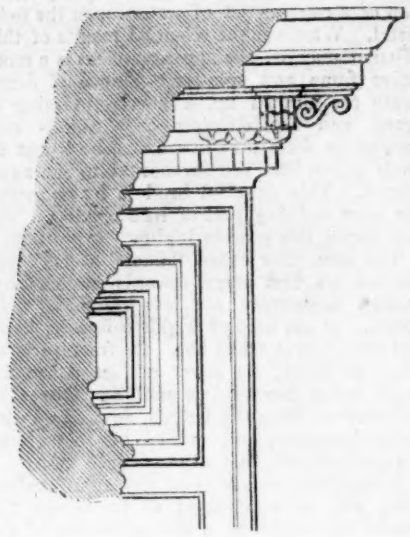


Fig. 2.

METAL DOORS AND IRON ROOF OF THE MUSEUM OF ECONOMIC GEOLOGY.

CONTINUING our notice of the Museum of Economic Geology, in Piccadilly, we now give a representation of the entrance doorway in Jermyn-street, with proposed metal doors, and diagrams illustrating the iron ribs which form the roof.

The doors, 16 feet high by 6 feet 3 inches wide, are proposed to be of bronze, and (as may be seen) to be very elaborately and elegantly ornamented, including, in oval panels, the heads of two of the Gorgons, probably because of the myth which ascribed to them the power of transforming into *stones* all who looked at them. It was at one time proposed to employ the electrotype process in the production of these doors, but this is at present not decided on. Fig. 2 is a section of the door-head, to shew the profile of the mouldings.

The elevation of half of one of the iron ribs forming the roof, shewn on the opposite page, with cross sections at various points, will explain itself when compared with the general view of the roof before given.* The span from support to support, in the shape of iron cores to the pilasters which are seen in our general view, dividing the recesses for cases (and which go down to the floor), is about 55 feet, but the foot of the rib extends to the wall, which is 6 feet further on each side. The roof, where not of glass, is covered with ¾ inch slate slabs.

* See p. 522, *ante*.

LIVERPOOL ARCHITECTURAL AND ARCHÆOLOGICAL SOCIETY.

THE third meeting of this society for the present session was held on Wednesday evening, the 8th inst., at the Royal Institution, the Rev. D. James, F.S.A., one of the vice-presidents, in the chair.

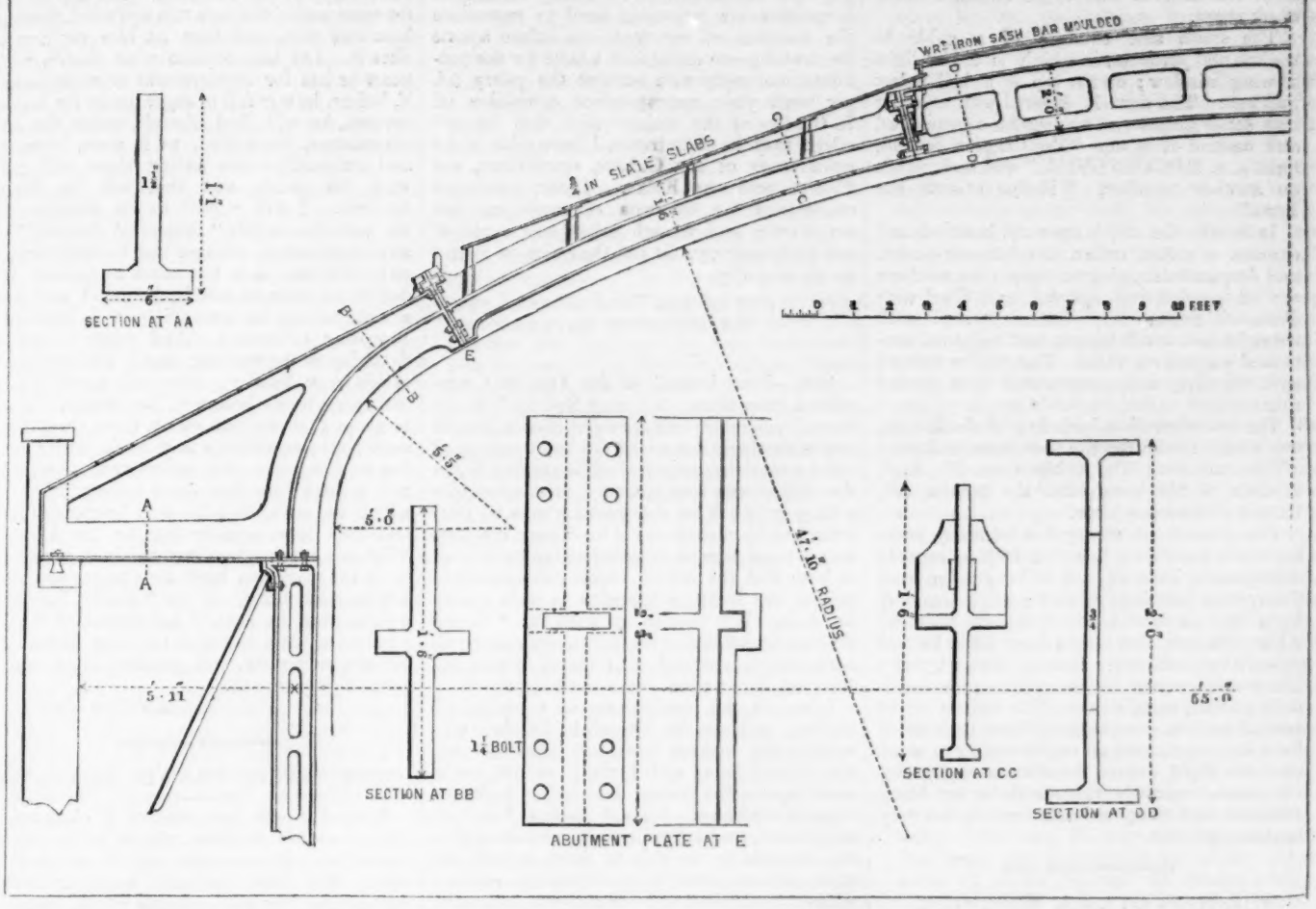
Mr. Picton called the attention of the members to a volume of the works of Robert Adam lying on the table, containing, amongst othe buildings, the plans, &c., of the Registry Offic Edinburgh, and the magnificent mansion Luton Park, Bedfordshire, erected for t Earl of Bute (tutor to George the Thir which has recently been purchased, togeth with the estate, by a Liverpool gentleman, M. John Shaw Leigh. The speaker remarked the careful study and the excellent arrangement of the plans of Adam, and made a w observations on the peculiarities of his st. The secretary, Mr. Reed, made some interesting remarks on the restoration, or rathe rebuilding of the parish church of Wigan, ow proceeding under the direction of Mr. E. Shpe, of Lancaster.

A letter was read from the secretary the Archæological Society now forming at Chester, requesting advice and co-operation, wh it was resolved that every encouragem be given to the Chester society, which is vited to co-operate and correspond with the ciety of Liverpool.

The paper of the evening was by Mr Frank Howard, "On Decoration applied to rchitecture as distinguished from Decorati Art," which elucidated the principles that should govern architects in the application ornament and decoration, particularly in gard to painted ornament. A paper "On Sculptured Ornament" was promised at a future period.

PUBLIC BATHS AND WASHHOUSES.—The Manchester yielded, in 1848, a rplus of 30*l.*, after payment of rent, water, oap, gas, salaries, and other expenses.——The Newcastle have not yet redeemed their whole cost, but no permanent burden will be entaile upon the corporation funds.——It appears, b the report of the East Smithfield, that durig the last twelve months 33,655 had bathed, 34,843 had washed and dried, and 12,610 had roned.

DETAILS OF IRON ROOF, MUSEUM OF ECONOMIC GEOLOGY.



POYNTINGTON SCHOOL-HOUSE, SOMERSET.

THE village of "Poyntington" is situated on the borders of Somerset, and about two miles from the town of Sherborne, in Dorsetshire, and contains a church of Decorated character, though in a very dilapidated condition. Until the above school was built, it was without any place of learning for the children of the poor inhabitants.

The school-house, represented by the annexed engraving, consists of one large room, 27 feet by 13 feet 6 inches, with a projection at the south-west corner, containing a raised platform or gallery for the infant children, a cloak room on north side, and spacious court and appurtenances: the walls are built of rubble stone in random courses, and all the dressings are of Ham Hill stone, properly tooled. All the wood, except the floor, which is of elm, is of red pine, and no paint is used throughout the building, all the woodwork being exposed to view, and stained with church varnish, prepared by Stephens.

POYNTINGTON SCHOOL-HOUSE.

MR. WITHERS, ARCHITECT.

The east elevation presents a gable, with three-light window of flowing tracery, and terminating in a cross; a floriated cross surmounts the gable, and an angle buttress flanks the south side: the door in wall is the entrance to the cloak room.

The south side consists of a gable to the infants' platform, in which is a two-light flowing window; on the top is a bell turret and bell. The door is covered with wrought iron scroll hinges and appropriate appendages, and around it is cut "Poyntington School, built A.D. MDCCCXLVIII.," and underneath on another member, "Holiness unto the Lord."

Internally the roof is open and boarded, and consists of rafter, collar, ties, hammer-pieces, and drop-rafters resting on plates: the windows are all hooded and splayed, and filled with diamond glass; the doors covered with wrought-iron scroll hinges, and scriptural sentences painted on walls. The roof is covered with old tiles, and surmounted by a crested ridge.

The cost of erection, including all the fittings, was within 250*l.*: the site was given, and most of the sculpture. The architect was Mr. R. J. Withers, of Sherborne, and the builder, Mr. Harris, of the same place.

This part of the county has for many years been in a wretchedly ignorant state as regards architectural knowledge, if we may judge from the various buildings erected; and it was only by a late movement as respects the beautiful Abbey Church, that a turn may fairly be said to have been effected. During the last year a better spirit seems to have sprung up, and is daily gaining rapid strides. The various clergy around seem to have wakened from their slumbers, and are one and all endeavouring to atone in some slight degree for former negligence. Churches, especially the chancels, are being restored, and village schools erected, in a very laudable manner.

THE FOUR O'CLOCK MOVEMENT.

Sir,—As on any subject of dispute you are always willing to hear both sides of the question, I trust, as you have found room for the letter of "A Young Builder," you will insert this communication from a Young Carpenter; as I fear lest the contents of the former may tend to disturb the present amicable and satisfactory arrangements. The privilege would at first cause some inconvenience to employers; but this was from the suddenness of the change, and not the principle of it. Employers had only to make their arrangements one hour and a half earlier, and then it was as easy to pay at four as half-past five. The bankers of the City (calculating men) find suspending their business at four o'clock on Saturdays to answer, why not builders? As regards the profit and loss in the matter, I believe the general adoption of the privilege, by allowing more time for the mental and moral improvement of workmen, and by diffusing a better feeling between employers and employed, is calculated in itself to amply repay employers.

"Y. B." calls the privilege "a gross imposition on the part of mechanics." Now, Sir, I appeal to all those liberal and respectable builders who granted it, and all those sober and intelligent workmen who asked for it, against this expression. He either does not remember, or is not aware of the day in September, 1847, when above 600 carpenters assembled in public, to pay a tribute of respect, by a vote of thanks, to their worthy employers who had granted the privilege. There never was a movement of the building trades conducted in a more conciliatory spirit, or a privilege granted with a better grace; it was lauded on all sides by the most influential portion of the press. The *Times*, THE BUILDER, the *Morning Advertiser*, and weekly journals sent their representatives, and several builders honoured the meeting with their presence. The privilege was asked for and granted on the principle that the "interests of employers and employed are identical," and that, therefore, a good understanding ought to exist between them. And of this I do not yet despair. Were the privilege withdrawn, it would create a spirit of retaliation, injurious to employers and employed, and open a breach which would take many years to close. Your correspondent thinks it is not beneficial to workmen; but we have not had time to develop its benefits,—the privilege is little more than a twelvemonth old; give us time—give us encouragement. Many intelligent carpenters are labouring hard to regenerate the members of our trade—to diffuse a taste for drawing—to extinguish a taste for the pot-house, and repay with interest the paltry 9d. per week your correspondent complains of. In the face of the sinister wish that the privilege may be withdrawn, I have faith in the good sense of our Cubitts, our Bakers, our Pipers, and our Kelks. These gentlemen understand the interests of employers and employed; and though sometimes a part of our trade may err, let not their sins be visited on the majority.

ONE OF THE DELEGATES IN THE FOUR O'CLOCK MOVEMENT.

Sir,—Your journal of the 11th inst. contains a letter from "A Young Builder," on the four o'clock movement, a subject of considerable importance, and one which has lately engrossed much attention among the building trades. When the subject was first broached, you earned the lasting gratitude of the working man by your praiseworthy endeavours in his favour, and I am sure it must now be very disheartening to you, to hear that the object which you assisted in gaining has been an injustice to both master and man. But though as such the "Young Builder" who last week addressed you would have you understand it, I think, if you will allow me, I can soon prove to the contrary.

I am in the employment of a competing builder, perhaps the largest in London, who readily and without hesitation gave his men the desired boon, and I really cannot see in what manner the system has worked badly for me as a workman. I must confess I do not, and cannot, understand how it is detrimental to my interests to be able to dress myself, and walk out comfortably on Saturday evening without being tired and disheartened by a hard day's labour. As to my employer, he knows his own interests, and I very much doubt that the system can be more disadvantageous to him than it is to me, or it would scarcely have been so readily adopted by one notable for his prudence and foresight.

The "Young Builder" observes that, "if quitting work at 4 o'clock on Saturdays was in the least degree beneficial to the workman, or at all consistent with common sense or justice, he would be the first to promote its general adoption, but a glance at the public-houses in the neighbourhood of the pay-tables of builders who allow it, will soon convince an observer to the contrary." This is the old jargon about the working classes not knowing how to take care of themselves. Were not public-houses as thronged on Saturdays under the old system as they are now? nay, were they not more so? I will tell the "Young Builder" where this evil has a fruitful source, and clearly show him that it is wholly independent of the 4 o'clock movement. Not long since I was for some time employed at a house in Marylebone, by a master who lived in Westminster. I myself resided in the city. On Saturdays I left work as usual at half-past five, and went to Westminster to be paid: when I arrived it was past six, and there were always many men before me. For an hour have I had to loiter about waiting the arrival of the clerk, and when he came, for nearly another hour have I had to wait my turn. Now, where could I go all this time? It was impossible to go home. I had been at work all day, and was hungry. It was winter time, and I was cold; consequently I was *forced* into the public-house, and many were like me. If all did not keep within the bounds of temperance and moderation, I think it was hardly a matter of wonder. This evil still exists, and to a large extent among "young builders," so let it not be a matter of surprise if, whether the men strike work at four or half-past five *on Saturdays*, the public-houses in the neighbourhood of such pay-tables should be more than usually thronged.

As to the system being beneficial, or at all consistent with common sense or justice, I will offer just a few words for the "Young Builder's" edification. Let the "Young Builder" put his hand to the mallet some fine Monday morning at six o'clock, after having walked for some half-hour previously to his place of employment, and continue at the work till half-past five in the evening; again on Tuesday, and every day till Saturday. Let him do this for some weeks, through rain and wind, through heat and cold, and then let him say how he likes it. Let him explain what desire, what heart he has for improvement or amusement: if, before, he was full of eager desire for mental culture, he will find himself, under the circumstances, benumbed, as it were, inwardly and outwardly: one feeling alone will pervade his mind, and that will be desire for rest. I will appeal to the secretary of the new (so-called) "Protection Society," or any other mason, whether this be not the case; and I will ask, is it too much to demand one day in the week on which the mind may soar a little above its grovelling and brute-like every-day existence? And what a day is Saturday to the working man! The precursor of his only holiday,—that only day which he can spend in the bosom of his family. Why, to make that holiday sweet, there are a thousand little preparations to be made, which none but working men can understand. And who will grudge him this short release from toil which he asks, that he may be enabled now and then to remember that he has a soul? Who can say he does not think it beneficial to let the workman have time to prepare himself for such a day. If the "Young Builder" means what he says, I am persuaded it only requires a little thought to make him adopt the system himself, and promote it as something highly beneficial.

AN OLD MASON.

PROTECTION OF PILES IN SEA-WATER.

Sir,—In your last number I observed a letter from Mr. Jackson, relative to the protection of piles in sea-water and of timber from ants. The letter contains some important particulars, but also *opinions* which, from the attention I have paid to the subject, I consider calculated to create an erroneous impression.

I quite agree with Mr. Jackson as to the *difficulty* of proving that any process for preserving timber had effectually withstood the "teredo navales" (I say nothing of the *white ant*). It would take a *long series of years* before any decisive *facts* could be obtained as to its efficacy in resisting that "calamitas navium."

My *own* opinion is that *no chemical* means will *effectually* prevent the ravages of the teredo, and I found this statement on what I know of the nature, character, and manner of its operations—facts which I have taken considerable pains to investigate.

Mr. Jackson questions the use of broad-headed nails as a means of protection: he states, "they lose their heads when rusted," and mentions the fact of his having seen timber which had been covered with such, but when taken up was quite destroyed. It is a dangerous thing to generalize from a simple fact like this; but whether the nails lose their heads *when rusted* is of small consequence (the only fear is they may lose them before); for that very rust hardens upon the pile and becomes a solid mass impenetrable to the worm. I can shew your correspondent specimens of scupper-nailed piles which have been under water from ten to fifteen years, and the wood quite sound, while both above and below the nailing on the pile the wood is perforated by myriads of the teredo and also the lymnoria. I have also many other proofs of the efficacy of scupper-nails in preserving timber; I do *not say* it is *always* successful, but it is the most perfect plan for preserving piles in sea-water, and one subject to fewer contingencies: whatever may have been the cause of the *decapitation* of the nails, it is evidently the exception and not the rule. The facts mentioned by Mr. Jackson relative to the effect produced on wood by the white ant prepared by several chemical processes are of the highest value, and would apparently shew that it is quite as destructive on the land as the teredo on the sea, and as doubtful if any but *mechanical* means will preserve from destruction the timber it inhabits.

Fulham. JOHN PATON.

NOTES IN THE PROVINCES.

To the restorations in Waterbeach Church, a new window, the gift of Mr. E. Mason, and containing four panes of painted glass, the work of Miss Burbage, of Cambridge, has been put up, and it has been proposed in the parish, as the most acceptable acknowledgment of the liberality of Mr. Mason in rebuilding the chancel, to raise a subscription to repair the remainder of the edifice, in a corresponding style. We are sorry to say, however, adds our authority, the *Cambridge Chronicle*, that impediments have been started, likely to nullify the intentions of the projectors.——A church lately erected at Skirbeck, near Boston, Lincolnshire, at the expense of Dr. Roy, rector of the parish church, was consecrated last week.——The Rev. C. A. St. John Mildmay, as rector of Chelmsford, says the local *Chronicle*, has wisely decided on preventing any further interments taking place in the body of the church,—a resolution the more honourable to the rev. gentleman, because it is carried out at the sacrifice of his own private interests.——It is said to be the intention of the Woods and Forests to apply next session for an Act to vest the Pavilion in her Majesty in fee-simple, to dispose of it as she may please. It applies further for power to purchase lands, houses, &c. intermixed with or contiguous to the premises.——A memorial window, in the decorated style, was last week fixed at Portswood Church, near Southampton: Mr. Brandon, architect; Mr. Baker, mason; and the stained glass by Messrs. Ward and Nixon.——The new dining-hall, erected in Pembroke College, Oxford, from designs by Mr. Hayward, architect, of Exeter, has been opened: Mr. Arding (London) was the builder.——The Royal Old Wells and Baths at Cheltenham have, according to the *Journal*, been purchased by Messrs. Rowe and S. Onley, jun., with a view to restore or rebuild the pumproom on a more extensive scale for general purposes; also to preserve the old walk, with its noble avenue of time-honoured elms. A plan, too, is said to have been submitted to the town commissioners for running a main public sewer down the whole length of the Chelt, at a cost of between one and two thousand pounds, while its sanitary value would be incalculable. The river Chelt would then become again a trout stream. An anonymous "friend" has contributed 1,000*l.* towards rebuilding St. Peter's Church, Cheltenham. The same "friend" who has behaved so generously towards St. Peter's Church has given a donation of 100*l.* for the Church of England training schools at Cheltenham.——The old church at Buckenhall, six miles from Taunton, is undergoing entire demolition; the old Gothic windows being broken up to mend a wall! A cross and other parts were taken to Taunton, to be kept as a memento of what appears to be a very strange proceeding. A new church has been erected nearer the clergyman's residence.——The foundation-stone of the new bridge at the eastern approach into Truro, was laid on 4th inst.——A map, shewing the entire range of the Liverpool docks, existing and intended, has just been published. The extreme length of the river wall, which fronts the line of the docks, is within a few yards of 4 miles. The total water area now available amounts to upwards of 195 acres, and the total quay space to more than 14 miles. There are in all twenty-one docks in operation, exclusive of graving docks, half-tide docks, and basins. Of these, five, comprising about 33 acres of water area, and nearly 2 miles of quay space, have been opened within the last few weeks. Two others, and a half-tide dock, which will yield together 21 acres of water area and one mile of quay space, are in a state of great forwardness, and when all are brought into play, together with the contemplated increase in the neighbourhood of Wapping, Liverpool will be possessed of a vast extent of dock accommodation.——Steps, says the *Leeds Intelligencer*, are being taken for the erection of a new church in St. Matthew's district, Little London. The designs approved for the structure are by Mr. Burleigh, architect. The church will consist of a nave of five bays, with clerestory and aisles; and a chancel with two lights on each side. The style is decorated. The original design shews a tower at the south-west angle, forming the porch, and surmounted by a spire; but to save expense, a gable belfry is substituted, and a porch is attached to the centre compartment of the south aisle. The clerestory windows are each a circle enclosing a trefoil.——The inhabitants of Doncaster have presented a memorial to the town council on the supply of water. In some parts of the town they have not had water for three or four days and sometimes a week together! Water companies do indeed require a little salutary correction, and in more places, too, than Doncaster.——The Hull Dock Company have resolved to go to Parliament for a short Bill to enable them to raise 150,000*l.* on loan, in addition to the 400,000*l.* which they are, by their existing Acts, authorised to borrow for the completion of their works.——The foundation stone of a new Roman Catholic Church was lately laid at Morpeth.——A monument in memory of the late Rev. Dr. Chalmers has just been erected over his grave, in the Southern Cemetery, Grange Loan, Edinburgh, by his family. The design is said to be extremely simple, consisting of three massive slabs of granite, projecting from the northern wall of the cemetery, the one in the centre having the inscription, "Thomas Chalmers, D.D., LL.D., born in 1780, died 1847." The grave is enclosed with a railing in the Gothic style.

Miscellanea.

ILL-RESTORATION OF CHURCHES. — At the first meeting of the Archæological Institute on the 3rd inst., Mr. Westmacott took occasion to invite the attention of the members resident in remote parts of England, to the injuries caused by injudicious restoration of churches. He alluded to various architectural remains of value which he had visited during a recent tour for the purpose of examining the church architecture of some of the counties least visited by antiquaries; and said, he had witnessed with regret the still prevalent deficiency of care and judgment in the repair or rebuilding of many parochial churches deserving of preservation. These remarks were followed up by several members present, stating recent instances of the destruction of ancient works of architecture or other art. Mr. Lamb alluded to the total ruin of a church at Quarendon in Buckinghamshire, rebuilt by Sir Henry Lee in the reign of Elizabeth, and in which some fine family memorials existed within memory, now wholly destroyed. The fabric had been in a perfect state at the close of the last century. Mr. Westwood complained of the destruction of a curious inscription at Sunning-hill, given in Camden's 'Britannia,' and now lost. Mr. Richardson remarked that the alabaster tombs and effigies of the Minors family in Staffordshire had been removed, and their fate was not known. Lord Northampton recommended to the society to encourage a more active interest in the preservation of ancient remains,—and suggested that much might be effected through the influence of members resident in various remote parts. He called attention to the frequent discoveries of mural paintings during restoration of churches, and to their interest as examples of art; the valuable decorations just discovered at Wells,—the curious designs lately found by Mr. Blore in restoring the Church of Caistor, Northamptonshire,—and the design exhibited by Mr. Giles on the present occasion, from the Church of Wellington, Somersetshire, the finest example of painted sculpture, perhaps, yet discovered. Works of this nature could rarely be fully preserved, and it became desirable to obtain careful drawings of them.

SMOKY CHIMNIES.—Sir: I have tried all sorts of things to remedy this evil in a house which I built for a gentleman in Oxfordshire last year. All that I had hitherto tried has been in vain. I one day arranged a pot, which I suppose may be called a self-acting pot, and I am glad to say this answers, and has remedied the evil. It is set diagonally (where there are more than one they would be set point to point); there are four doors, one on each side, with a connecting-rod attached to each pair, so that when the wind is blowing strongly from any quarter, two doors will be immediately shut, and the two opposite opened by those that are shut: the top is quite closed.

H. C. T.

THE ART-UNION OF LONDON AND THE BOARD OF TRADE.—We are positively informed that a petition to the Board of Trade, professedly emanating from artists, and urging the necessity of preventing the selection of the prizes by the prizeholders themselves, has been got up by parties *connected with that Board*, and is now being sent round to the leading artists to obtain, if possible, their signatures! Surely their lordships cannot be aware of such an unscrupulous proceeding—a proceeding at once undignified, hazardous, and tyrannic. To our minds it involves so much more than the mere question at issue that we can scarcely credit the statement. It comes to us, however, from a member of the Academy, to whom the petition was sent, and who at once refused to sign it,—because, as he said, he honestly believed that the Art-Union was doing much for art and artists in this country, and that the alteration in its constitution which some few individuals desired to make, and which the petition sought, would greatly cripple if not altogether destroy it.

DEATHS THROUGH INSUFFICIENCY OF MACHINERY.—We learn from the local press that the erection of a court-house at Tain, Ross-shire, upon the site of the old prison, has already been signalised by a disaster almost as melancholy as that which attended the destruction of the former building by fire in the year 1825. For the purpose of raising the stones employed in the building, a crane was erected some time since, and appeared to be quite sufficient for the duty required, but the ratchet-catch was left out of its place, and the stone then being raised, descended and killed one of the workmen. Two other lives were afterwards sacrificed by a part of the machinery giving way. The overseer, after the first accident, substituted a new jib, much longer and heavier than the one formerly used, with a view to the more convenient execution of the work. This new jib was a fir log, about 48 feet long, and throughout its whole length about 8½ inches square. In raising a heavy stone the catch of the ratchet-wheel became bent, and therefore shortened. The jib got a start downwards, and the extremities of the ratchet-teeth gave way, one after another, by the action of the catch against them. In its descent the jib struck against a platform near the front wall, and a portion of it, about 37 feet long, turning round the point of fracture, the extreme end fell into the middle of the street and killed two boys, one of whom was engaged at the work, the other a mere passer-by. Want of care on the part of those engaged in such operations is a *crime*.

LECTURE AT THE LONDON SCHOOL OF DESIGN.—On Friday, in last week, Mr. R. N. Wornum delivered a lecture on Asiatic art, at the Government School of Design, Somerset House. The state of art among the Israelites at the period of their exodus out of Egypt was first considered, and their works—the Golden Calf and the Tabernacle—minutely described. As artists the Israelites of that period were in every respect Egyptian. The works of art of a later date—Solomon's Temple and the Golden Candlestick—were described in detail. The state of Assyrian art and the ruins at Persepolis afforded the lecturer an opportunity of stating a great number of facts connected with these ruins. A description of the excavated temples of the Hindoos concluded the lecture.

EXHIBITIONS FOR THE WORKING-CLASSES, MANCHESTER.—The Exhibition of the Works of Modern Artists at Manchester has closed for the season. Following the plan commenced last year, the rooms were thrown open to the working-classes at the charge of twopence each. During the twenty-four nights when so opened, they were visited by about 17,000 persons, consisting, in a great measure, of the class for whom this evening exhibition was more particularly intended. They evidently both valued the privilege and derived from it an enjoyment which it was highly gratifying to observe: and *in no one instance did the slightest damage to any work occur*.

INCRUSTATION IN STEAM-BOILERS.—M. Cavè, the eminent French engineer, announces that he has ascertained that a number of small oak blocks, thrown into steam-boilers, has the effect of completely preventing incrustation, and that it is sufficient to renew them about twice a fortnight.

Projected Works.—Advertisements have been issued for tenders—by 6th December for completion of the unfinished works on the London and North-Western Railway, in two contracts, one for about 4 miles 12 chains, the other for about 3 miles 49 chains, with earthwork, masonry, rails, &c.; by 4th December, for the erection of a block of ten coke-ovens at New-cross Station, on the Brighton Railway; by a date not specified, for various gas fittings for Birmingham Gaol; by 21st inst., for alterations, additions, and repairs of Houghton Mill-bridge, Lancashire; by 15th, for laying down drains at Addenbrooke's Hospital, Cambridge; and by 29th, for lighting part of Tottenham with gas or naphtha, or partly both, till April, 1849.

Sanitary Progress.—The Ely correspondent of the *Cambridge Chronicle*, after summing up a goodly display of facts of the strongest description with regard to the "nuisances of a dangerous character which abound from one end of the city to the other," and have increased the mortality of Ely above other places,—adds that, notwithstanding, "one of our surveyors has the effrontery to say the Health of Towns Bill is not wanted here." The Government inspectors have been requested to investigate evidence highly favourable it is said, for the possibility of carrying out a proper system of drainage.——The guardians of the North Witchford Union have resolved to carry out the provisions of the Removal of Nuisances Act, and have been soliciting reports of nuisances.——The West Ham guardians are also astir, and so are the inhabitants of Stratford ward in reference to nuisances.——In Islington, Clerkenwell, and other crowded districts of the metropolis, a great many summonses have been taken out under the Sanitary Act against house owners, for insufficient water-closets, &c., for tenants. ——The Brecknock guardians and street trust are carrying out the Nuisances Act, and requesting co-operation.——So are the parochial authorities of Cockermouth, the guardians of Workington, and the Carlisle council. At Carlisle steps are also being taken by the council for the application of the Health Act to the city.

Proposed Improvement in Gracechurch-street, City.—It is proposed to lessen the danger arising to foot-passengers from the great pressure of vehicles at the corner of Fenchurch-street and Gracechurch-street, where stands St. Benet's Church, by opening the lower part of the tower and allowing passengers to pass through it, by which means the present foot-pavement may be added to the road. The project has been mooted some time, but stood still for want of money. The Common Council had voted 300*l.* towards it, but the remainder could not be obtained. The City Sewers Commission have now voted 100*l.* for the same object, and the work will probably be commenced shortly.

Navy Timber Contracts.—A correspondent of the *Times* calls the attention of the timber trade seriously to the following questions:—1. Whether there are no merchants of sufficient spirit and capital to compete with the present contractors? 2. Whether the connections of the present firm are absolutely necessary to the obtaining of the required supply, and that no others have equal connections? 3. Whether the words at the bottom of the Government advertisement, "the Commissioners are not bound to accept the lowest tender," have not often prevented many large firms from sending in tenders, knowing it to be a waste of time? He also asks the difference in price between the tenders made and those accepted.

Blind Builders.—The following is a list of the tenders delivered for the proposed Odd Fellows' Institution, at Birmingham; Mr. Alexander, architect. The quantities *were supplied*.

Orchard	£2,900	0	0
Walker and Wilkins	2,695	0	0
Brooks	2,619	0	0
Bradshaw	2,484	6	10
Henfield	2,483	5	0
Turner	2,476	0	0
Branson and Gwither	2,460	0	0
Webb	2,458	0	0
Upton	2,393	18	10½
Jackaman	2,292	7	6
Mountford	2,056	14	4

Interesting to Upholsterers and Builders.—Mr. Lydiard, a builder, became bankrupt after having given an acceptance for 40*l.* to Mr. Acutt, an upholsterer, in part payment of five coffee-room tables, made to order of Lydiard, for Mr. Cooke, the proprietor of the Three Cups Tavern, who pursued Mr. Acutt for the tables, which had been delivered to Mr. Cooke, but returned to Mr. Acutt for alterations, arranged with Mr. Lydiard to cost 2*l.* 10*s.* Mr. Baron Platt gave a verdict for the plaintiff, Mr. Cooke, on the ground that as there had clearly been a delivery of the tables to the plaintiff, there was not any property in them in Lydiard, and therefore they could not constitute a set off against the defendant's claim upon the bankrupt.

Poison from Leaden Water Pipes, &c. The family of Louis Philippe are said to have narrowly escaped being poisoned by the impregnation of water from leaden conduit pipes and reservoirs at Claremont. The mischief was first reported to have arisen from copper, an equally poisonous metal. The family have been obliged to remove to Richmond. The metropolitan correspondent of the *Liverpool Albion*, gossipping on things in general, expresses his belief that the right reason of the removal has been alleged, inasmuch as Claremont "is in the hands of the Woods and Forests, and that is quite sufficient to ensure its being in the worst possible state, at the largest possible expense."

The Decorative Art Society.—On the 25th ult. a paper was read by Mr. Laugher, which embraced a review of the transactions of the society during the last session. It stated that twelve important topics had been treated at length during that period, and these had reference to the occurrences of the time at which they had been produced. They were described as remarkable for freedom from merely retrospective views and historic data, and as being distinguished by a great proportion of inductive reasoning upon palpable every-day experiences. It was affirmed that the instructive remarks on discussions had been generally so well-timed and so practical in their nature, that the society had been enabled to promulgate ideas which would stimulate in their echoes and reverberations the progressive enlightenment and advance in appreciation of the decorative arts. Each paper was referred to, and the details—for the most part recorded by us—afforded matter for several useful comments as they were passed under review. Mr. Laugher also read a paper "On the study of design from vegetal growth," illustrated by drawings on a large scale, recently made by members of the society in the Botanic Gardens at Kew.

Boiler Explosions.—It gives us great pleasure to notice the praiseworthy exertions now being made by the ironmasters in South Staffordshire to prevent accidents by steam boilers, which unhappily of late years have been of so frequent and disastrous occurrence in this neighbourhood both to life and property. We learn, that in addition to the many precautions already adopted, the ironmasters are entering into a union generally to employ an inspecting engineer, to examine and report monthly to them upon the working condition of all their boilers and engines. This plan is carried out to a great extent, and with perfect success, we believe, in Cornwall, and although the low price of coals may be considered a reason, in a pecuniary point of view at least, why it need not be followed out to the same extent in this district, we are sure that great improvements may be made, and that in a commercial point of view it would be found of much value. It must also prove very satisfactory to the foremen and engineers employed in the different establishments, since, by the adoption of the proposed plan, much responsibility will be taken from them in cases of accident, and the rumoured interference on the part of the Legislature would also be rendered unnecessary.—*Birmingham Journal.*

Institute of Architects.—On Monday, the 20th, the opening meeting, Earl de Grey will take the chair, and will present the Royal and other medals awarded during last session. A paper will be read on the cathedral church of St. Isaac, recently erected at St. Petersburgh.

The Mastership of the Glasgow School of Design.—We mentioned a short time ago that, on the report of Mr. Wilson, the late director of the Somerset House School of Design, made without any previous conference with Mr. M'Manus, to give him the opportunity of rebutting any prejudicial statements which might have been offered to Mr. Wilson, Mr. M'Manus had been dismissed, after five years' services and the annual eulogiums of the leading members of his committee. Our readers will be astonished to hear now, that Mr. Wilson has himself been appointed to fill the vacancy thus created!

Electrical Explosion of Boilers.—A writer in the *New York Tribune*, who attributes the explosion of steam boilers to the same force which issues from the atmospheric vapours as lightning and with identical effects, suggests the adaptation of proper conductors, especially copper tubes, to the nozzle or valve chamber of the boiler. The explosive principle is disengaged from the steam, he adds, as it is let into the cavity of the nozzle on the opening of the steam valve, when the pressure that kept it combined with the steam is in great part taken off. The suggestion appears to be a really feasible, as well as new one, though it has long been known or believed that the explosive principle is not steam itself, but rather its constituent gases decomposed by the electrical forces, and especially when the *safety*-valve is opened. That the electrical forces *are* generated in the escape of steam from the opened valve was sometime since remarkably proved by Mr. Armstrong, who thence invented his hydro-electrical machine, a battery which appeared to possess all the intensity of the electrical charge with all the sustainment or continuity of the galvanic circle, and the powers and merits of which we do believe are not yet half developed. In connection with these discoveries, this new suggestion may lead to important results.

Self-Education.—The learning that we acquire at school is but the beginning of education, and because we have left school our education is not complete, but only begun, for what we have there learned, we have yet to learn the application and practice of, in all the requirements and duties of life; and now it is that we must commence the most important part of education, self-education, the applying what others have taught us to the teaching ourselves, the carrying on what others have begun for us to our own self-improvement. Now, in reality, begins true education, for whatever a man learns himself, he always knows better than what he learns from others. Not that, therefore, the help and the advice of others is to be disregarded at any time, for we must use all the aids of men or books that we can. But we must set ourselves to work upon ourselves, and we must no longer be children dependent upon others to teach us, but striving to teach ourselves. When we were young our food was provided for us, but even then we ate and digested it for ourselves: now we must not only do this, but we must earn it also, acquire it for ourselves, and so in understanding and in knowledge become men.—*The Working Man's Charter.*

Foot Suspension-bridge, Sun Tavern Fields, Shadwell.—A foot suspension-bridge has just been erected, under the direction of Mr. Wm. Dredge, C.E., across the Ropery-grounds, in the Sun Tavern Fields, parish of Shadwell, to form a communication between the Commercial-road and the London Docks. The bridge is built of iron, with the exception of the roadway, which is planked with 2½-inch yellow battens. The clear span of the bridge is 91 feet, the width of the roadway 7 feet 6 inches. Each chain, as it rests upon the tower of support, is composed of 8⅝-inch round bars of iron, and four bars, each ½-inch in diameter; this gives an aggregate section at each end of 6·52 square inches of iron in the chains, the breaking strain of which is 195 tons, being equivalent to 132 tons placed upon the platform. The weight, however, which the bridge will bear in safety is only one-third of this, or 44 tons. The holdfasts to the retaining chains are held in their places by being securely imbedded, each in about 10 tons of concrete. The platform, when extremely loaded, will hold about 150 persons.—*Mechanics' Magazine.*

IMPROVEMENT OF NAIL-MAKING MACHINES.—Mr. Charles Lambert, of Bristol, has patented a new arrangement, by which heated iron-rods, by eccentric rollers, or rotary cams, are formed into wedges, or a series of connected wedges, ready to be cut into separate nails.

TO CORRESPONDENTS.

"*Royal Academy.*"—In reply to several, probationary drawings must be sent in by December 28th, or June 28th.

"*S.*" (Liverpool).—We are unable to answer the question, and cannot make a charge on anonymous authority.

Received.—"W. H. J. W." (we shall be glad to see the drawings and will return them whether used or not). "Mr. H." (forwarded). "Subscriber A." (write for prospectus of British Mutual Loan Classes, 17, New Bridge-street, Blackfriars). "W. H. J. W." (will appear). "Quondam" (will appear). "J. W." (the plan seems similar to one proposed by Mr. Martin long ago). "T. E. R." (declined with thanks; the window is apparently perpendicular, not Early English). "G. H. W." "*Aretæus*." "W. T." (Norwich).

"*Books, Prices, and Addresses.*"—We have not time to point out books or find addresses.

ADVERTISEMENTS.

ARCHITECTURAL SUBJECTS (Outlines) coloured for Competition or Exhibition, and embellished with Landscape, &c. Buildings, Portraits, and Views of every description. Lithographed in a superior manner, by GEORGE CHILDS, 12, Amwell-street, Pentonville.

TO ARCHITECTS AND ENGINEERS.

MR. EDWARD is desirous of meeting Gentlemen who require Coloured Architectural Designs, Perspective, got up and coloured in the neatest style at moderate terms. Mr. E. further begs to state that he makes a consideration in his charges, should the competition prove unsuccessful.—Address, Mr. EDWARD, 16, Woodstock-street, Bond-street.

TO ARCHITECTS.—COMPETITION AND OTHER DRAWINGS.

MR. THOMAS S. BOYS, Member of the New Society of Painters in Water Colours, and author of "The Picturesque Architecture of Paris, Ghent, Rouen, &c." and of "London as it is," offers his services in Tinting Backgrounds, Landscapes, Perspective Views, Interiors, &c. From the long experience he has had in such subjects, he is fully aware of the points essentially necessary to be attended to. Drawings and designs lithographed in a superior manner.—Address, Mr. BOYS, 81, Great Titchfield-street, Oxford-street.

M. COON having discovered a New Method of LITHOGRAPHING PLANS of every description, in about half the usual time, and at a considerable less expense, begs to offer his services for that purpose, promising that any orders he may be intrusted with will be promptly attended to. It answers admirably for multiplying Tracings.—Lithographic Printing Office, 15, Cheapside, London.

COOZE'S IMPROVED MARBLE PAPERS.—The Trade are supplied with these beautiful Papers, which are the sole invention of W. W. COOZE, Decorator to her Majesty. They will be found fully equal, in effect, to painting, at a considerable saving of expense. W. W. C. invites an inspection at his Manufactory, 20, Frith-street, Soho-square, where also may be seen designs of every style of decoration, which are executed on the most economic terms. Contracts taken and workmen sent to any part of the United Kingdom.—20, Frith-street, Soho-square.

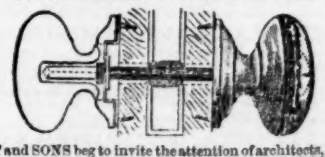
PAPER-HANGINGS, MANUFACTURED UNDER HER MAJESTY'S ROYAL LETTERS PATENT.

E. T. ARCHER, 451, Oxford-street, solicits an inspection of the various DECORATIVE PAPERS, fitted up in panels on the walls of the extensive range of apartments, built expressly for that purpose; where also is kept an extensive stock of every variety of Paper-hangings, at the lowest possible price and of the best manufacture, in English and French Designs, by the best Artists; and where may be had a large assortment of French and other Continental Paper-hangings always on hand.—Builders and large Consumers are particularly invited to the above.—451, Oxford-street.

GALVANIZED IRON FOR ROOFING, &c.—The Galvanized Iron Company beg to direct the attention of architects, surveyors, builders, and others, to their Patent Galvanized Iron, which is peculiarly adapted for ROOFING and BUILDING PURPOSES, especially for Tropical climates, being cheaper and more durable than zinc, lead, tin, or any other metal, calculating weight and strength. This fire-proof material has been used for roofing the new Houses of Parliament, shipbuilding and timber sheds in her Majesty's dock-yards of Deptford, Woolwich, Chatham, and Portsmouth; and at many of the principal Railway stations, gas works, &c. &c. This material is also admirably adapted for the construction of conservatories, fire-proof buildings, chain and wire rope bridges, corrugated doors, shutters, &c. &c. Specimens may be seen, and every information obtained at the Offices of the Company, No. 3, Mansion House Place, City—London. Works at Millwall, Poplar, Middlesex; Broad-street, Birmingham; Cobyn's Hall, near Dudley.

By Her Majesty's Royal Letters Patent.

PITT'S PATENT SELF-ADJUSTING DOOR KNOBS AND LOOSE SPINDLES.



HART and SONS beg to invite the attention of architects, builders, and others, to their Door Furniture, mounted for PITT'S PATENTED SPINDLES. The knobs are stronger, more durable, and more elegant in form, than those in ordinary use, as the spindles, being loose, do not require the objectionable side screw. They are more readily fixed, are suitable for every description of lock now in use, and, as they adjust themselves to doors of different thicknesses, without alteration, are particularly adapted for the country or for exportation. They are made (to suit every style of decoration) in China, crystal, amber, and opal glass, buffalo, horn, ivory, ebony, brass, &c., en suite with finger-plates, bell-pulls, levers, &c.—May be obtained of all Ironmongers; or of the proprietors and sole manufacturers, HART and SONS, Wholesale Ironmongers, 53, 54, and 55, Wych-street, Strand, London.

N.B. PITT'S PATENTED SPINDLE, being the only one that does not require a screw in the side of the knob or mounting, the use of any lock furniture without such side screws would be an infringement of the patent.

REDUCED PRICES.—WILLIAM CLEAVE, of Wilton-road, Pimlico Basin, begs to acquaint Builders and the Trade that he has now on hand, at his Manufactory (the first of its kind ever established), a very large Assortment of Dry and Well-seasoned OAK AND DEAL PREPARED FLOORING BOARDS and MATCH BOARDING of all sorts, from ¼ inch to 1½ inch thick, planed to a parallel width and thickness, and at greatly Reduced Prices. Also, Timber, Deals, Oak Planks, Scantlings, Sash Sills, Moulding prepared by Machinery, Laths, &c.

Apply at W. CLEAVE'S Flooring Manufactory and Timber Yard, Wilton-road, Pimlico Basin, late C. MOORE and SON.

A REDUCTION in the PRICE of FLOOR BOARDS.—ALFRED ROSLING begs to inform the Trade and Consumers generally, that he has REDUCED the PRICE, and keeps constantly in stock a large and very general assortment of Prepared Floor Boards and Matched Boarding, laned to a parallel breadth and thickness, and fit for immediate use; also a variety of machine-prepared Mouldings, which are finished with great accuracy and attention to quality of workmanship.—Southwark Bridge Wharf, Bankside, and Old Barge Wharf, Upper Ground-street, Blackfriars.

THE LOWEST PRICES for CASH.—T. ADAMS (late S. DARE), MAHOGANY and TIMBER MERCHANT, Bermondsey New Road, near the Bricklayers' Arms, SEASONED FLOORING, MATCH-BOARDING FIT FOR IMMEDIATE USE, and MOULDINGS prepared by machinery, Cut Deals and Scantling of every dimension, Mahogany, Cedar, Rosewood, Wainscot, Elm, Beech, Oak, &c., in planks, boards, veneers, and logs; Pantile, Oak, and Fir Laths; Wheelwrights' Goods. All sawn and prepared goods delivered free of expense (except timber). Sawing charged at mill prices. Very extensive Drying Sheds.

MUIR'S PATENT PLANING MACHINE.

SAW MILLS, GILLINGHAM-STREET, PIMLICO.

TIMBER of any size, PLANK, DEALS, and BATTENS, &c., Sawn on the most approved principle. Boards, &c., Prepared, Matched, and Grooved, by Muir's Patent Machinery. The Mills have all the advantages of navigation and water-carriage, being connected with the Thames by the Grosvenor Canal. Goods fetched from the docks and carted home free of charge.

Address to HENRY SOUTHAM, Saw Mills, Gillingham-street, Pimlico.

N.B. Estimates given for Sawing and Planing.

WOOD THOROUGHLY SEASONED in DAYS instead of YEARS, by DAVISON and SYMINGTON'S PATENTED PROCESS, at the Patent Desiccating Company's Establishment (for Seasoning, Sawing, and Planing Wood), at the Grand Surrey Mills, immediately adjoining the Commercial and East Country Docks, Rotherhithe. The new process ensures the entire removal of moisture, hardens the gums, prevents further shrinkage, and strengthens the fibre.—For scale of prices, or license to work the patent, or any further information, address, post-paid, or apply to ANGUS JENNINGS, Secretary.

The Patent Desiccating Company's Offices are REMOVED from 28, New Broad-street to No. 41, GRACECHURCH-STREET, CITY.

The Company's Agents are—Mr. WM. LANE, Irwell-buildings, Manchester (late of Stockport); Messrs. RANDOLPH, ELLIOT, and Co., Glasgow; Messrs. CLIFFORD and BROWN, Hull.

JORDAN'S PATENT MACHINE CARVING and MOULDING WORKS for WOOD and STONE, Belvedere-road, Lambeth, and 154, Strand.—TAYLOR, WILLIAMS, and JORDAN beg to call the attention of the building community to a new feature of their establishment, and, at the same time, to thank their numerous patrons and friends for the very liberal support they have lately experienced, which, they assure them and the public, it will be their constant endeavour to deserve, by giving their customers an increasing share of the advantages arising from the constant improvements in the machinery which they have just succeeded in applying to the production of the most intricate carving in Caen and other freestones, and in statuary marble.

T., W., and J. particularly solicit the attention of architects and builders to the fact that, by the use of this machinery, a very large saving, both of time and money, is effected,—so great, indeed, that in many cases they can deliver a well-finished article in Caen stone for less money than it can be obtained in cement, while their wood-carving will, in some cases, be found to come into close competition with the best kinds of composition ornament.—For prices and estimates apply at 154, Strand.

TESTIMONIAL FROM CHARLES BARRY, ESQ.

"Westminster, May 16th, 1848.

"Gentlemen,—In reply to your letter requesting my opinion of your Patent Carving Machinery, I have much pleasure in stating, from an experience of more than two years, in its application to the production of the wood carvings of the House of Peers, and other apartments of the New Palace, at Westminster, that I am enabled to make the most favourable report concerning it, and to add that it has more than justified the favourable terms in which I recommended it in 1845 to her Majesty's Commissioners of Woods and Works for adoption.—I remain, Gentlemen, yours faithfully,

"CHARLES BARRY."

"Messrs. Taylor, Williams, and Jordan."

TO ARCHITECTS, BUILDERS, &c.

GEORGE JENNINGS, Patentee of the SHOP-SHUTTER, SHOE and FASTENER, INDIA-RUBBER TUBE COCK, &c. &c., 29, Great Charlotte-street, Blackfriars-road.

IRON SHUTTERS.—The PATENT CONVEX REVOLVING IRON SHUTTERS are cheaper, twelve times stronger, work easier, cannot run down, and roll up in one-third less room than any other shutters made. Harcourt Quincey, Patentee.

CLARK and Co., Sole Manufacturers, and of IMPROVED DRAWN ORNAMENTAL METALLIC SASH BARS, ASTRAGALS, MOULDINGS, STALL-BOARD PLATES, &c. &c., in brass, copper, and zinc. WROUGHT-IRON GIRDERS, HOT-WATER APPARATUS, and metal works of every description connected with buildings. Steam engines, millwork, and machinery. CLARK and Co., Engineers, 23, Wapping. Models can be seen and every information obtained at 456, Oxford-street, and 4, Moorgate-street, City. Agent for Scotland, Mr. G. BRIGSTOCK, 17, George-street, Edinburgh.

BUNNETT and CORPE, ENGINEERS,
Patentees of
REVOLVING IRON AND WOOD SAFETY SHUTTERS,
and of
ORNAMENTAL METALLIC SASH BARS, MOULDINGS, &c.,
IN BRASS, COPPER, ZINC, &c.
FOR SHOP-FRONTS, SKYLIGHTS, &c.

Shop-fronts completely fitted and fixed in a superior style, either plain or ornamental, also glazed with best plate glass. Strong moulded stallboards handsomely engraved. Metal works and machinery of all kinds in connection with banking-houses, shops, warehouses, &c. &c.

B. and C. challenge competition as to either quality or price.

Designs furnished and estimates given.

IMPROVED PATENT BENCH AND FLOORING CRAMPS FOR BUILDERS.

SOLE LICENCEES FOR MARVIN and MOORE'S PATENT DIAGONAL GRATINGS.

Office of the Patentees, 26, Lombard-street, London; and at the Works, Deptford, Kent.

SNOXELL'S PATENT SAFETY REVOLVING WOOD SHUTTERS, Manufactory, 96, REGENT-STREET and 121, CHANCERY-LANE. Patent sealed on the 4th day of February, 1845, for Fourteen Years, for Improvements in Revolving Shutters of WOOD and IRON, consisting of Six Methods of Raising and Lowering Shutters, without Machinery, and Two for Hinging and Sheathing the Edges of Wood Laths with Iron.—The Patentee having fixed up some hundreds, will feel pleased in forwarding the Testimonials of Architects, Principals of large Establishments, and others, having them now in use, which fully guarantees the Patentee in stating they are beyond dispute superior to any other Revolving Shutter for durability, security, and simplicity, without the use of cog-wheel worm and screw gear, or any other complicated machinery employed by other makers.

CHEAP ORNAMENTAL GLASS.—I beg to inform my friends and the public, that I have now completed a new ENGINE, and, owing to the facility with which I can execute orders, I am enabled to reduce my former prices considerably. The prices are now from ONE SHILLING PER FOOT SUP., and borders from SIXPENCE PER FOOT RUN. A large quantity of the cheapest patterns always in stock. Embossing and painted work on the most moderate terms.—CHARLES LONG, No. 1, King-street, Baker-street, Portman-square.—Cash only.

E. and W. H. JACKSON beg to call the attention of Builders and the trade to the reduced prices of their PATENT PLATE GLASS, which, from its cheapness, is now superseding crown in all respectable dwelling-houses. BRITISH and ROUGH PLATE, CROWN, SHEET, STAINED, and ORNAMENTAL GLASS, supplied of the best manufacture, and at the lowest terms. List of prices, estimates, and every information can be had on application at their warehouse, 315, Oxford-street.

PLATE GLASS.—THE BIRMINGHAM PLATE GLASS COMPANY, Smethwick, near Birmingham, and 141, Fleet-street, London, supply silvered, polished, picture, and rough plate glass, of first-rate quality, and on the most advantageous terms. ESTIMATES for SHOP FRONTS, &c., with samples of the glass, forwarded on application, to any part of the kingdom.

PATENT PLATE GLASS.—HETLEY and CO. beg to inform Architects, Builders, and the Trade generally, that their new Tariff of PRICES for the above is now ready, and will be forwarded on application. A REDUCTION of about 40 per cent. has been made on the usual Glazing sizes.—Sheet, Crown, and Ornamental Window-Glass Warehouse, 25, Soho-square, London.—ROUGH PLATE GLASS.

THE UNION PLATE GLASS COMPANY beg to call the attention of architects, surveyors, builders, large consumers, and the trade generally, to the quality, colour, and substance of their highly-finished glass, and as the discounts vary according to size, they prefer giving a special estimate for each quantity required. To encourage the use of Plate Glass for glazing purposes, the price is considerably reduced, which will, for its durability and appearance, insure the preference to any other description.

ROUGH PLATE GLASS supplied for skylights, warehouses, workshops, and flooring, 3-8ths, ½, ⅝, and 1 inch thick.

London Warehouse, 59, Hatton-garden, Holborn.

H. CHRISTIE, Agent.

WINDOW GLASS. — THOMAS MILLINGTON solicits an inspection of the different GLASSES he has now in stock, the qualities of which will be found to be very superior.—87, Bishopsgate-street, Without.

NEW TARIFF.—Sheet in various large dimensions delivered free in London.

Common in 100 feet cases			20s. 0d.
Do.	200	do.	23s. 0d.
Thirds	200	do.	42s. 0d.
Seconds	200	do.	60s. 0d.
Best (very superior)	do.		100s. 0d.

ROUGH PLATE GLASS for WINDOWS, SKYLIGHTS, and FLOORS in sizes not exceeding 5 feet superficial.

¼ thick	1s. 0d.	½ inch	2s. 0d.
3-8th inch	1s. 2d.	1 inch	3s. 0d. per foot.
⅜ inch	1s. 6d.		

PATENT ROUGH PLATE TILES.

¼ thick	0s. 11d.	3-8th inch	1s. 7d.
⅜ inch	1s. 3d.	½ inch	2s. 0d. each.

GLASS DOMES for SKYLIGHTS, from 15 to 30 inches in diameter. These are well worth notice.

C C C Crown per crate 18 tables			£1 16 0
C C	do.	do.	2 0 0
Fourths	do.	do.	2 7 0
Thirds	do.	do.	3 2 6

Large Crown Squares in 100 feet boxes ..... 2½d. per foot.
8 by 6 — 10 by 8 do ..... 2d. do.
Very superior Plate for Pictures and Windows, averaging 26oz. from 1s. 6d. per foot upwards.

CHAS. WM. WATERLOW,
MANUFACTURER

of Sashes and Frames, and Joiner to the Trade, 121, Bunhill-row, Finsbury-square.—Well-seasoned materials, superior workmanship, lowest prices.—Upwards of 400 DOORS, and a large variety of Sashes and Frames, always on sale. Glazed goods securely packed for the country. Steam-struck Mouldings in any quantity.—N.B. This Establishment is worth the notice of all engaged in building.

TO THE OWNERS OF SAW MILLS, PLANTATIONS, and Collieries; to Builders, Millwrights, Engineers, &c.

IMPROVED CIRCULAR SAWS, Upright Saws, for timber and deal frames; Patent Tempered Machine Plane Irons, saw files, improved engineers' files; Patent Tempered Machine Knives, and cutters of all descriptions, made on the most scientific and economical principles, with dispatch, by BLAKE and PARKIN, the Meadow Steel Works, Sheffield.

By Her Majesty's Royal Letters Patent.

BAILLIE'S PATENT ROUNDED RIM LOCKS, WITH SECRET AND SECURE FIXINGS.

THIS CHEAP and USEFUL ARTICLE obviating the unsightly appearance and insecurity of the common rim lock, can be obtained from the Manufacturers, Messrs. CARPENTER and TILDESLEY, Willenhall; or from the sole Agent, Mr. JOHN FAULKNER, Ironmonger, 62, St. Martin's-le-Grand, London, opposite the new Money-Order Office.

CHUBBS' LOCKS, FIRE-PROOF SAFES, AND CASH BOXES.

CHUBBS' PATENT DETECTOR LOCKS give perfect security from false keys and picklocks, and also detect any attempt to open them. They are made of all sizes, and for every purpose to which locks are applied, and are strong, secure, simple, and durable.

CHUBBS' PATENT LATCH, for front doors, counting-house doors, &c., is simple in construction, low in price, and quite secure. The keys are particularly neat and portable.

CHUBBS' PATENT FIRE-PROOF SAFES, BOOKCASES, CHESTS, &c., made entirely of strong wrought-iron, so as effectually to resist the falling of brick-work, timber, &c., in case of fire, and are also perfectly secure from the attacks of the most skilful burglars.

CHUBBS' CASH and DEED BOXES, fitted with the Detector Locks.

CHUBB and SON, 57, St. Paul's Churchyard, London.

PRO BONO PUBLICO.

CAUTION to Purchasers of FIRE-PROOF DOORS for Strong Rooms, Safes, Chests, and Detector Locks, &c. &c. LEADBEATER, many years manufacturer for Chubbs.

LEADBEATER begs most respectfully to inform Architects, Surveyors, Builders, &c., that he can supply them with IMPROVED DETECTOR LOCKS for universal purposes. STRONG WROUGHT IRON FIRE-PROOF DOORS, SAFES, and CHESTS, &c., on the most improved principles of security against FIRE and THIEVES, without the aid of "expensive machinery," which is employed by some inexperienced makers, but must be paid for; at prices 25 per cent. under any other house in London.

LEADBEATER offers ONE HUNDRED POUNDS reward to any person who can pick his improved detector locks or latches. Some thousands of Leadbeater's strong-room doors and safes have now been put up without a SINGLE COMPLAINT, and fifteen years' practical experience, during which he has adapted every possible improvement to real security, enables him to challenge competition with any house in London. A large assortment of all sizes on sale and made to order. A pair of extra strong wrought-iron fire-proof folding-doors with ventilating gates, made expressly for a banker's strong room, may be viewed at his manufactory. Strong wrought-iron doors for party walls, with wrought-iron rabitted frames, and secured by the BEST DETECTOR LOCKS in ENGLAND, 6 feet high by 2 feet 2 inches wide and upwards, price 10l. each, always on hand at LEADBEATER'S MANUFACTORY 28, ALDERSGATE-STREET, LONDON.

TO THE BUILDING PUBLIC.

FIRST-RATE ORNAMENTS in PORTLAND, ROMAN and other CEMENTS, and PLASTER of PARIS, at reasonable prices, consisting of Vases, Balusters, Capitals, perforated Panellings, Cantilevers, Brackets, Trusses, Wreaths, Scrolls, Masques, Heads, Figures, Friezes, Gothic and other Chimney-Shafts, Soffits, Bed-moulds, Paterns, &c., &c., 36-inch Centre, Flowers fixed complete, 24s. each, smaller in proportion An assortment of Shop-front Trusses always ready for fixing.—JOHN HERBERT and SON, Modellers, &c., 42, Parker-street Drury-lane.

PLASTER of PARIS.—Plasterers and Others can be supplied with PLASTER of PARIS, of excellent quality, delivered at Three Cranes Wharf, London, at 50s. per ton, casks included; or by sending bags, can have them filled and delivered at 42s.—Orders addressed to W. B. WILKINSON, Manufacturer, Newcastle-on-Tyne, accompanied by a remittance or a reference, will meet prompt attention.

GREAVES'S BLUE LIAS LIME and LIAS CEMENT.—Messrs. RUTTY and VEREY'S, 2, South Wharf, Paddington Basin. Works at Stratford-on-Avon and Southam. GLAZED STONEWARE DRAIN PIPES on hand.

ATKINSON'S CEMENT.—WILLIAM WOOD, Jun., Manufacturer of Roman, Portland, and Bath Cement, Blue Lias Lime Works, CHURCH STREET, ROTHERHITHE, Sole Consignee for Atkinson's Cement.—Cement Chimney-pots of every pattern.

ROMAN CEMENT, made according to the specification of Parker's Patent, may be had genuine of J. M. BLASHFIELD (late Wyatt, Parker, and Co.), Waterloo Dock Wharf, Commercial-road, Lambeth, No. 1, Irongate Wharf, Paddington, and at the Manufactory, Mill Wall, Poplar. Also Plaster, Mastic, Tarras, Bricks, Tiles, &c.

PARIAN CEMENT, for internal Stucco, instead of PLASTER OF PARIS, may be painted and papered within twenty hours of its application on the bare walls; and rooms may be rendered habitable by its use before the materials commonly adopted would begin to dry. It is worked without the slightest difficulty. A finer quality is also prepared for ornamental plastering, for encaustic painting, &c. &c. Specimens of which may be seen at the Manufactory of the Patentees, CHAS. FRANCIS and SONS, Cement Works, Nine Elms, London.

KEENE'S PATENT MARBLE CEMENT forms an exceedingly hard and indestructible Stucco, which may either be prepared for paint, or finished in imitation of stone, by the addition of Portland or other stone dust.

It is a cheap and efficient substitute in place of wood for skirting, architrave, and other mouldings, in its application for which purposes it checks the progress of Fire and the attacks of Vermin.

Patentees and sole Manufacturers, J. B. WHITE and SONS, Millbank-street, Westminster, and Seel-street, Liverpool.

PORTLAND CEMENT.—J. B. WHITE and SONS, request reference to Nos. 284 and 285, pages 343 and 351, of "The Builder," for accounts of experiments on the strength of Portland Cements.—These trials show that for the practical purposes of building, the connecting power of Portland Cement exceeds that of Roman Cement in the proportion of four to one; thus marking it as the most fit material for turning the brick arches of Railway bridges and other works of a critical nature, while its firm adhesion to most sorts of stone, as well as bricks, combined with its eminently hydraulic properties, adapt it for such purposes as the building of sea and wharf walls, and the lining of reservoirs, cisterns, baths, &c. Manufacturers, J. B. WHITE and SONS, Millbank-street, Westminster.

PORTLAND CEMENT, solely MANUFACTURED by WILLIAM ASPDIN, Son of the Patentee.—Messrs. ROBINS, ASPDIN, and Co. request reference to No. 296, page 491; and also Nos. 284 and 285, pages 343 and 351 of "The Builder," for accounts of EXPERIMENTS on the strength of Portland Cements, whereby the great superiority of their Cement is manifest. This Cement has been proved for upwards of twenty years in the Thames Tunnel to resist the action of water; it is stronger in its cementitious qualities, harder, and more durable than any other description of Cement; it does not vegetate, oxydate, or turn green; nor is it affected by any atmospheric influence whatever the climate, resisting alike the action of frost and heat. It is manufactured to set in from five to sixty minutes. For all purposes that Cement is applicable the Proprietors challenge competition.—Orders received by Messrs. ROBINS, ASPDIN, and Company, at their Manufactory, Northfleet, Kent, and their Wharf, Great Scotland-yard, Whitehall; also by their Agent at the Depôt, 1, Back Goree, Liverpool.

JOHNS and CO.'S PATENT STUCCO CEMENT and PAINT.—The attention of Architects, Builders, Plasterers, Painters, Merchants, and the Public generally is solicited to the many advantages attached to these celebrated Materials, which, for their appearance, durability, imperviousness, utter resistance to frost or heat, and general economy, distinguish them from all other cements and paints, and fully justify the confidence reposed in them, as shewn by the numero s testimonials received from public bodies and private individuals of the first importance.—Prospectuses and particulars may be ob ained from the sole agent, PHILIP HARE, at the Warehouse, 22, Steel-yard, Upper Thames-street.

MARTIN'S PATENT FIRE-PROOF and ORNAMENTAL CEMENT—REDUCTION of PRICE.—The Patentees beg to inform their Friends and the Public that they have made arrangements which enable them to offer this invaluable cement at a considerably reduced price. It has now been before the public so many years, and has obtained so high a standing in the estimation of all who have used it, that it is unnecessary to comment on its merits. The Patentees, however, feel called upon to observe, that by its use—from the greater amount of surface which a given quantity will cover, and the small amount of labour required in working it, a saving of 25 to 30 per cent. is effected as compared with other cements for internal use. Specimens shewing its beauty, hardness, and applicability to all plain and ornamental purposes, may be seen; and the Cement in any quantity obtained of the Patentees, Messrs. STEVENS and SON, at their Plaster and Cement Works, 186, Drury-lane, London.

TO ARCHITECTS, CONTRACTORS, BUILDERS, AND OTHERS.

WE have pleasure in calling your attention to our REGISTERED CUPBOARD TURN, the novelty and simplicity thereof being universally acknowledged. It possesses the important advantages of a stop rose, a fast tongue, and regulating itself to any thickness of door: the cost being scarcely, if any more, than the ordinary turn, added to its utility, it will, we flatter ourselves, supersede any yet introduced.

WEBB and GREENWAY, Manufacturers and Wholesale Ironmongers, York-street, Birmingham.

PROTECTION of LIFE and PROPERTY from FIRE.—"Again 'and again, we protest against the absurdity of constructing buildings as if for the express purpose of readily burning, and urge, on the other hand, the importance of adopting every practicable precaution to render them fire-proof, and the sin against society which the neglect of these precautions involves."—See leading article of "The Builder," of Nov. 11, 1848.

The attention of the public is especially directed to a new method of constructing the floors, ceilings, and roofs of dwelling-houses and other buildings, invented and recently patented by Dr. Fox, of Northwoods, Bristol, by which they are perfectly fire-proof, and secured from the annoyance of vermin, and the baneful effects of dry-rot. This invention has been subjected to the test of more than fourteen years' experience, in an extensive lunatic asylum, erected by the patentee in the county of Gloucester, and unites greatly increased strength and durability with the above advantages, while the principle of construction is so perfectly simple and effective, as to preclude all liability to failure. For public buildings of all kinds; for warehouses, where valuable property is deposited; for manufactories, where hazardous business is carried on; and for all buildings which are subject to heavy rates of fire-insurance, as well as for private mansions and dwelling-houses generally, this system is most admirably adapted, affording complete security to life and property. The expense is considerably less than any other system of fire-proof building, and does not exceed that of the ordinary mode of construction with timber. There is also considerable economy in the application of the fire-proof roofing, which entirely supersedes the necessity of the usual timber roof.—Further particulars may be obtained, and the flooring seen, on application to the proprietors, Messrs. FOX and BARRETT, Leicester Chambers, 46, Leicester-square.

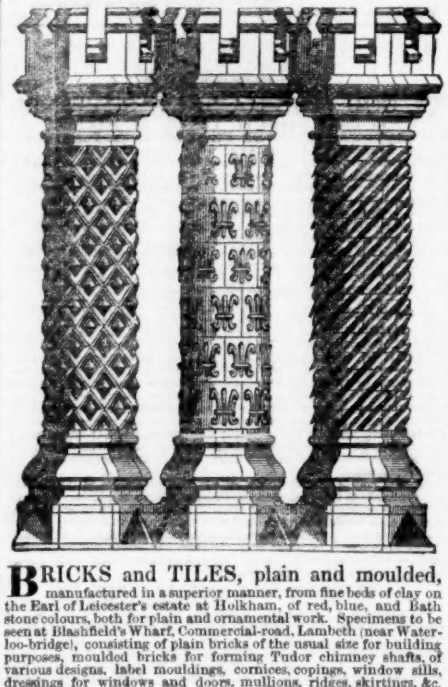
WORCESTER ENCAUSTIC TILE WORKS.—The Proprietors, who are retiring from Business, are enabled to offer their STOCK of TILES at a very Reduced Rate. Ornamental Pavements of the best description, at 1s. 2d. per square foot; "Seconds," at 9½d.—N.B. These Tiles being manufactured in exact imitation of the best ancient specimens, are more suitable for the restoration of ancient Churches and Buildings than any others of modern make; and the present opportunity affords Architects and others the means of adopting a very beautiful decoration at the ordinary cost of stone. Arrangements have been made for any future "matchings" that may be required.—Specimens may be seen in London, at Messrs. GREIVE and GRELLIER'S Marble Wharf, Belvidere-road, Waterloo-bridge; and in the country, at the Works, Palace-row, Worcester.

NEW BRICKS.—TO BE SOLD, 300,000 PRIME NEW STOCK BRICKS, of good colour and quality, made at Grays. To be delivered there or in London.—Apply to Mr. BARNES, 33, Fenchurch-street.

BRICKS.—Superior White and Red Facing Bricks, Hard Stable, Paviours, &c. &c., may be had at W. and S. WRIGHT'S Brick and Tile Works, Hanwell, Middlesex. Moulded Bricks and Tiles to any pattern on liberal terms. The above works adjoin the Grand Junction Canal and Great Western Railway, from whence goods may be conveyed to town and country at a trifling expense. Where large quantities are wanted for public works, mansions, &c. W. and S. W. will contract to make them on the spot.

FIRE BRICKS.—WARD and HART, Honduras Wharf, Bankside, respectfully solicit the attention of Gas Companies, Builders, Engineers, Oven Builders, Shippers, and others to the fact that they have now completed their Stock of Stourbridge, Welsh, and Newcastle Fire Bricks, Lumps, and Tiles, of all sizes and shapes, which they are offering with every advantage to purchasers. Goods may be had from ships in the river at a great reduction. Fire Clays, Loams, Dutch Clinkers, Stock Bricks, Windsor Bricks, Oven Tiles, Pan, Plain, Ridge, and Paving ditto, Moulding Sand, House Sand (red and white), River Sand, Ballast, Lime, Cement, Malt and Corn-drying Kiln Tiles, now in such general use for malting, &c. &c., Chimney-pots, Drain Pipes, Tiles, &c. &c. Goods made to pattern at the shortest notice. Sanitary Pipes of every description. Country orders executed with dispatch. Country Builders will find th s the cheapest market for the above.

TO ARCHITECTS, BUILDERS, AND RAILWAY CONTRACTORS.



BRICKS and TILES, plain and moulded, manufactured in a superior manner, from fine beds of clay on the Earl of Leicester's estate at Holkham, of red, blue, and Bath stone colours, both for plain and ornamental work. Specimens to be seen at Blashfield's Wharf, Commercial-road, Lambeth (near Waterloo-bridge), consisting of plain bricks of the usual size for building purposes, moulded bricks for forming Tudor chimney shafts, of various designs, label mouldings, cornices, copings, window sills, dressings for windows and doors, mullions, ridges, skirtings, &c. Also roofing and paving tiles of an ornamental character in the same materials. The moulded bricks are fully equal to the best specimens referred to under the articles "Brickwork," in Nos. 290 and 291, of "The Builder."

MESSRS. WOOD & Co., DECORATIVE ARTISTS, SIGN and GLASS WRITERS, GRAINERS, HOUSE PAINTERS, and GENERAL CONTRACTORS for REPAIRS, &c. &c.
70, York-road, Lambeth; and 28, Cross-street, Blackfriars-road.

PATENT TOUGHENED CAST-IRON. Messrs. GARDEN and MACANDREW beg to call the attention of Architects, Builders, Engineers, Iron-founders, &c., to the above description of IRON (Mr. Morries Stirling's patent), which, after numerous trials, experimental and practical, is found greatly to exceed all other cast-iron in tensile and transverse strength, as well as in resistance to crushing forces. Several of the most extensive iron masters have been licensed, and from them, or their brokers, the patent iron can be procured. Messrs. GARDEN and MACANDREW have always a stock of this iron in pigs, and are ready to execute orders to any extent on the shortest notice.
27, Queen-street, Cheapside, November, 1848.

COMPOSITIONS for WRITING with STEEL PENS.—STEPHENS'S WRITING FLUIDS compose the most splendid and durable colours, and the most indelible composition which art can produce; they consist of a BLUE FLUID, changing into an intense black colour. PATENT UNCHANGEABLE BLUE FLUIDS, remaining a deep blue colour. Two sorts are prepared, a light and dark blue. A superior BLACK INK, of the common character, but more fluid. A superior CARMINE RED, for contrast writing. A liquid ROUGE CARMINE, for artists and contrast writing, in glass bottles. A carbonaceous RECORD INK, which writes instantly black, and being proof against any chemical agent, is most valuable in the prevention of frauds. A liquid MECHANICAL and ARCHITECTURAL DRAWING INK, superior to Indian ink. Marking inks for linen, select steel pens, inkholders.—Prepared by the inventor HENRY STEPHENS, 54, Stamford-street, Blackfriars, and sold by booksellers and stationers everywhere, in bottles, at 1d., 2d., 3d., 6d., 1s., and 3s.

PAVING, 2s. 9d. PER SQUARE YARD, Basements, Foot-walks, Malt-houses, Corn Stores, Floors of Warehouses, and every description of Pavement laid down at the above low price, and the work guaranteed.—Apply to JOHN PILKINGTON, POLONCEAU'S BITUMEN PAVEMENT OFFICE, 15, WHARF-ROAD, CITY-ROAD.—N.B. Country Agents and Railway Engineers and Contractors supplied with the best bitumen for covering bridges and arches.

YORK STONE.—Buy your York Paving Slabs and Landings, your Bramley Fall, Portland, Park, Spring, and Harehill Block Stones, at the VICTORIA STONE WHARF, ISLE OF DOGS, opposite the Greenwich Hospital.
THE CHEAPEST WHARF IN LONDON FOR CASH.
Stone delivered to any wharf in the river in large or small quantities.

PATENT METALLIC LAVA, WHITE AND ORNAMENTAL, for the interior of Churches, Museums, Halls, Vestibules, Conservatories, &c. &c.; BROWN, for Foot Pavement, Flooring, covering Railway Arches, Terraces, Roofs, &c. &c.—Manufactured only by Messrs. ORSI and ARMANI.—Specimens and list of prices can be obtained at the offices, 6, Guildhall Chambers, Basinghall-street, City; and at the office of "The Builder."

ANSTONE STONE WHARF, STANGATE.—Mr. GRISSELL has the honour to inform Architects and Builders that he has made arrangements for the SUPPLY of the ANSTONE STONE for all building purposes, and which can now be seen at the above wharf by application to Mr. W. G. WARDLE, of whom every necessary information can be obtained.—August 30, 1848.

ANSTON STONE, used for Building the New Houses of Parliament.—W. WRIGHT and Co. beg to inform Architects, Engineers, Builders, and others, the Anston Stone can be supplied in any quantity on the shortest notice. This valuable stone, so celebrated for its durability, colour, and texture, is well known, having been selected in preference to all others, by the Commissioners of Woods and Forests, for building the New Houses of Parliament. It is very superior for Monuments, Tombs, &c. &c.

W. Wright and Co. have made arrangements to have a stock always on hand at the Marble and Stone Wharf, Horsfall-basin, Maiden-lane, King's-cross.—Any further information can be obtained on application to W. WRIGHT and Co., Anston, near Sheffield; or to T. SHARP, their Sole Agent in London, 27 Burton-crescent.

CAEN STONE.—Original Sufferance Depôt, Norway Wharf, Greenwich.—W. TUCKWELL, Caen Stone Quarry Proprietor and Importer, begs to invite the attention of Architects, Surveyors, Builders, and others to the Stock of CAEN STONE on his Wharf; he is prepared by constant arrivals to execute orders to any extent on the most advantageous terms.—Shipments made to any port direct from his quarries at Caen.

N.B. Orders received at the Wharf, as above; also at the Offices of Mr. R. A. WITHALL, Surveyor, 80, Cheapside, where further information and samples may be obtained.

CAEN STONE, from the first Quarries of Allemagne. Depôt at the Whitby and Scotch Wharf, 14, Fore-street, Limehouse.

P. FOUCARD, quai des Abattoirs Caen (propriétaire des Carrières à Allemagne), begs leave to inform Builders, Architects, and others, that he has, on the above-mentioned wharf, 50,000 feet of the best stone ready to meet the demands of purchasers.—Contracts taken for any quantities.

Orders received by Mr. BARCHET, at 39, Stoney-street, Borough Market,—Cargoes shipped to order, from Caen, to any port.

CAEN and AUBIGNY STONE.— LUARD, BEEDHAM, and Co., Proprietors of extensive Quarries of best Caen Stone at Allemagne, and Aubigny Quarries, near Falaise, Normandy, beg respectfully to invite attention of Archæologists, Architects, Engineers, Surveyors, Builders, and others to the above. Caen Stone is too well known to need special notice. Aubigny Stone, from its fineness of grain, hardness of texture, beauty of colour, freedom from vents, shell, and great durability, ranks amongst the first for building and engineering purposes, hall paving, staircases, sculpture, tombs, cemetery works, and general masonry. L. B. and Co. have for many years supplied large quantities to various parts of the continent for public works, light-houses, &c., under the patronage of the Royal Engineers. Orders executed to all parts of the United Kingdom with despatch direct from the quarries. A large stock of seasoned Caen and Aubigny Stone always on hand, at Caen Sufferance Wharf, Rotherhithe, where samples and information may be obtained.—Office, 18, Southwark-square, Southwark-bridge-road, Southwark.

SAMUEL CUNDY, Mason and Builder, PIMLICO MARBLE and STONE WORKS, Belgrave Wharf, Pimlico, begs to inform Architects and the Public that MASONS' WORK, in all its branches, is executed on the most reasonable terms, in such manner as must meet the views of his Patrons.

GOTHIC WINDOWS and the more elaborate Works produced at a reduced cost, on a system that combines economy with the required accuracy and truthfulness.

FONTS from 5l. upwards.

MONUMENTS and TOMBS in great variety of design.

The most varied Assortment of ORNAMENTAL, PLAIN, and ENCAUSTIC TILES, in Town, on view.

Stone-box Chimney-pieces, from ..... 12s.
Vein-Marble " " ..... 40s.

RESTORATIONS Estimated for (in which Branch S. C. ha had considerable practice). Dairies fitted-up, &c. &c.
Goods Landed, Housed, and Delivered.

ENAMELLED SLATE.—Messrs. JONES having had many years' experience in manufacturing Slate, and invented improved machinery for the purpose, can offer ENAMELLED SLATE, in all its branches, of superior workmanship and elegant designs, at very moderate prices, warranted in every respect equal to any manufactured in London.—Bangor Wharf, Pimlico, and 18 Wharf, Macclesfield-street, City-road Basin.

ENAMELLED SLATE.—CAUTION!— Some discarded workmen of Mr. Magnus's, having pirated his invention of marbling slate, and palmed upon the public trashy imitations, which unfortunately are frequently confounded with MAGNUS'S ENAMELLED SLATE, until a few months' wear has shown them in their true light, Mr. MAGNUS, who has expended a fortune in perfecting and introducing his enamelled slate articles (which articles have won for him the patronage of the highest personages in the realm, the approbation and support of the first architects, and the medal of the Royal Society of Arts), deems it incumbent upon him for his own protection, and that of the public, and for the just fame of his invention, to caution the inexperienced against these imitations. The public are, therefore, requested to observe that the address is MAGNUS, PIMLICO SLATE WORKS, and in future all articles of his manufacture will be so marked.

Patronised by her Majesty Prince Albert, the Duke of Wellington, the Duchess of Sutherland, the Duchess of Grafton, the Marquis of Westminster, the Marquis of Londonderry, the Earl of Denbigh, the Earl of Dartmouth, the Earl of Bandon, the Earl of Waldegrave, the Countess Wilton, Viscount Combermere, Lord Robert Grosvenor, the Bishop of London, the Bishop of Bath and Wells, the Hon. Col. Douglas Pennant, Mr. Assheton Smith, Col. Challoner, Sir J. Easthope, Sir Francis Lawley, Sir Ralph Howard, the Hon. Capt. Duncombe, Sir W. Gordon, the Hon. C. Shaw Lefevre, and numerous others of the nobility and gentry of this and other countries; by the most eminent architects and surveyors, the engineers and directors of the principal lines of railway, the Board of Public Works, and by the public generally.

SLATE SLABS.—Mr. MAGNUS having machinery in Wales capable of sawing and planing some thousands of tons annually, is enabled to supply the public at a much lower rate than any other house not possessing the same facilities. Parties ordering large quantities will be allowed a considerable discount off the recently reduced price list.—Address, MAGNUS, Pimlico Slate Works.

TERRA-COTTA, or VITRIFIED STONE WORKS, King Edward-street, Westminster-road, London.—M. H. BLANCHARD, from late Coade's Original Works, Belvedere-road, Lambeth, begs to inform the Nobility, Gentry, Architects, and Builders, that he has re-established the manufacture of that invaluable material, which has been successfully adopted by our eminent Architects and others, in the adornment of our noblest buildings, nearly 100 years has proved the imperishable nature of the material, the specimens of those times now exhibiting all their primitive sharpness.

Groups, statues, friezes, capitals, panelling, pinnacles, finials, terminals, Tudor, and other chimney shafts, balustrading, fountains, fonts, tazzas, vases, coats of arms, devises, and every description of architectural ornament, at prices in many instances nearly half the cost of stone.

Specimens of the material to be seen at the Office of "The Builder," 2, York-street, Covent Garden, and at the Works.